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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Bowman

Appeal No. ----

Application Serial No.: 09/737,185

Group No.: 1743

Filed: 12/14/2000

Confirmation No.: 9139

Examiner: Gakh, Yelena G.

For: **PAPERLESS CHAIN OF CUSTODY EVIDENCE FOR LAB SAMPLES**

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

Supplemental Appeal Brief

This Supplemental Appeal Brief is being transmitted in this application with respect to the Notice of Appeal filed June 12, 2006, and subsequent to the Appeal Brief filed November 17, 2005, with respect to the Notice of Appeal filed on June 28, 2005. A brief was filed prior of the November 17, 2005 submission, but a Notice of Non-Compliant Appeal Brief mailed October 27, 2005, required the resubmission of November 17, 2005. The Appeal Brief fee was paid with the earlier brief. Commissioner is hereby authorized to charge any additional fees that may be required to Deposit Account 501923.

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APPELLANT'S BRIEF

1. Real Party in Interest

The real party in interest in this appeal is GBF, Inc.

2. Related Appeals and Interferences

There are no appeals or interferences that will directly affect or be directly affected by, or have a bearing on the Board's decision in this appeal.

3. Status of the Claims

Claims 1-21, 38 and 40-44 remain in the case with none of the claims being allowed or allowable. Claims 22-37 and 39 were previously cancelled without prejudice. Claims 1-21, 38, and 40-44 are the subject of this appeal.

4. Status of the Amendments

No amendment was submitted after the final Office Action mailed January 10, 2006.

5. Summary of Claimed Subject Matter

As claimed in independent Claim 1 and the claims dependent thereon, the present invention provides a diagnostic specimen system for identifying and controlling biomedical or toxicology specimens and managing information associated with the specimens. Diagnostic systems test for disease and the like. Toxicology tests look for toxic substances, including illegal drugs. The system provides a diagnostic or toxicology specimen container having an electronic memory tag for remote, non-contact recording and reading of data stored therein. Other claims are directed to embodiments of a method of using the system to manage information associated with the specimens.

The diagnostic specimen system includes a population of biomedical specimen collection vessels, such as the vessel 1, shown in Figure 1. Attached to each of the vessels 1 is a wireless electronic memory tag 3. The tags 3 remain attached to the vessels 1 as each is transported between a vessel distribution facility (such as a vendor's warehouse), a specimen collection

facility (such as a doctor's office), and a specimen testing laboratory facility (such as a laboratory), as depicted by the flowchart of Figure 4.

Also, in various embodiments, the memory tags 3 store data representing an identification code for the vessel 1, the identity of the supplier of the vessel 1, and product information about the vessel 1. The data may relate to the specimen donor and identifies the specimen contained in the vessel 1. The data may also define analytical tests to be performed on the specimen. Each vessel 1 may also include an attached label 4 imprinted with an identifying bar code 7. Figures 1 and 5 show these additional features of the system.

Claim 9 and its dependents are directed to a toxicology specimen system. Collection vessels 1 are configured to receive and contain a toxicology specimen, and wireless electronic memory tags 3 are attached to the vessels. The wireless tags 3 remain attached to the vessels 1 as they are transported. The tags 3 are for non-contact storage and retrieval of information and contain stored data including an encoded electronic signature of the donor of a toxicology specimen. Claims 10-16 detail several additional features, and claim 17 recites several of those features in combination. Claim 38 is directed to the toxicology specimen collection vessel, including a tamper-indicating seal.

Additional embodiments of a toxicology specimen system are claimed that include a population of collection vessels 1. Each of the collection vessels 1 is configured to receive and contain a toxicology specimen and has a wireless electronic memory tag 3 attached for non-contact storage and retrieval of information. The memory tag 3 contains stored data including an encoded electronic signature of the donor of a toxicology specimen. The population of collection vessels includes a member at a vessel distribution facility, a member at a specimen collection facility, and a member at a specimen testing laboratory facility. Members of the population are transportable between the facilities, and the tag 3 is attached to the vessel 1 such that it remains attached to the vessel 1 as it is transported between facilities.

Claim 18 recites a method for electronically storing information on a diagnostic or toxicology specimen vessel 1 and remotely reading information from the vessel 1. The method includes providing a population of biomedical specimen vessels 1, as shown in Figure 4. Attached to each of the vessels 1 is a wireless electronic memory tag 3. The population of vessels 1 includes members located at and transportable between a vessel distribution facility, a specimen collection facility, and a specimen testing laboratory facility. The method further

includes storing data on one of the memory tags 3 at the vessel distribution facility, shipping or distributing population members with the stored data from the distribution facility to the collection facility, and reading the stored information from the electronic memory tag 3 with a non-contact electronic reader or scanner at a specimen testing laboratory facility. The memory tags 3 remain attached to the vessels during the shipping or distributing.

Claim 19 recites a method involving collecting specimens in the recited vessels and storing information about the specimen and its donor.

Claim 42 recites the population of vessels for collecting toxicology specimens, with some members of the population at the vessel distribution facility, some at a collection facility and some at a testing laboratory. Claim 43 recites a similar population of biomedical specimen collection vessels.

Claim 44 covers either type of specimen collection and details procedures involved in the specimen collection phase.

In an embodiment, the method that is depicted in the flow chart labeled Figure 4 of the application includes collecting a specimen from a donor in the specimen container at the collection facility, and storing information about the specimen, donor, and/or tests to be performed on the specimen on the memory tags 3. The method may also include collecting and storing the electronic signature of the specimen donor on the electronic memory tag at the specimen collection facility.

6. Grounds of Rejection to be Reviewed on Appeal

The following rejections are appealed:

- A. Whether Claims 1-21 and 40-44 are indefinite under 35 U.S.C. 112, second paragraph.
- B. Whether Claims 1-4, 6-7, 9-12, 14-15, 19, 21, 38, 40-41, and 44 are anticipated by U.S. Patent No. 6,535,129 to Petrick (“Petrick”) under 35 U.S.C. 102(b).
- C. Whether Claims 1, 6-7, 9, 14-15, 19, 21, 40-41 and 44 are anticipated under 35 U.S.C. 102(b) by U.S. Patent No. 5,777,303 to Berney (“Berney”).
- D. Whether Claim 21 is unpatentable under 35 U.S.C. 103(a) over Berney.
- E. Whether Claims 5, 8, 13 and 18 are unpatentable under 35 U.S.C. 103(a) over Petrick or Berney in view of U.S. Patent No. 5,314,421 to Leuenberger (“Leuenberger”).
- F. Whether Claims 16-17, 20, 42, and 43 are unpatentable under 35 U.S.C. 103(a) over Petrick or Berney in view of U.S. Patent No. 5,613,012 to Hoffman et al. (“Hoffman”) or U.S. Patent No. 5,948,103 to Fukuzaki (“Fukuzaki”).
- G. Whether Claims 2 and 10 are unpatentable under 35 U.S.C. 103(a) over Berney in view of disclosure of RD 421048 A (“RD 421048 A”).
- H. Whether Claims 3-4 and 11-12 are unpatentable under 35 U.S.C. 103(a) over Berney in view of Bowman, and further in view of EP 1,004,359 A2 to Stevens et al. (“Stevens”).
- I. Whether Claim 38 is unpatentable under 35 U.S.C. 103(a) over Berney in view of U.S. Patent No. 5,135,313 to Bowman (“Bowman”).
- J. Whether Claim 8 is unpatentable under 35 U.S.C. 103(a) over Berney, RD 421048 A, Stevens and Leuenberger.
- K. Whether Claim 17 is unpatentable under 35 U.S.C. 103(a) over Berney, RD 421048 A, Stevens, Leuenberger and Hoffman or Fukuzaki.

7. Arguments

A. Claims 1-21 and 40-44 Are Not Indefinite.

The Examiner rejected Claims 1-21 and 40-44 as indefinite incorrectly asserting that they are not directed to statutory subject matter.¹ The Examiner also rejected Appellant's claims as indefinite, asserting that certain of Appellant's claim limitations do not recite a particular structure, and so, do not limit the scope of its claims.² Then, the Examiner concluded that, since some of Appellant's claim limitations are not directed to specimen collection vessels, those limitations rendered claims to a larger specimen system indefinite, so the Examiner disregarded the limitations.³ Finally, the Examiner also erroneously concluded that Claim 18 of Appellant's application was indefinite.

According to the Administrative Procedure Act, a PTO Board must "hold unlawful and set aside agency actions, findings, and conclusions found to be...arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law." Thus, a patent examiner must abide by the law that a patent may be obtained for "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, subject to the conditions of [Title 35 of the United States Code]".⁴ These four categories of subject matter eligible for protection are meant to capture anything under the sun made by man.⁵ Accordingly, a "manufacture" has been described as any man made item not found in substantially the same form in nature that is neither a machine nor a composition of matter.⁶ An applicant for patent having an invention falling into any of the four categories of eligible subject matter must state

¹ Paragraph 3 of Office Action mailed January 10, 2006. ("According to 35 U.S.C. 101, patentable inventions are related to 'any new and useful process, machine, manufacture, or composition'. It is not clear, which category of this four the claimed subject matter belongs to.").

² Id. ("*Language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a **particular structure** does not limit the scope of a claim or claim limitation.*").

³ Id. ("The examiner concludes that since the location of the vessels does not further limit their structure, the limitation recited in the independent claims after 'wherein' (excluding the structural elements related to the vessels themselves) does not bear any patentable weight.")

⁴ 35 U. S. C. 101.

⁵ *Diamond v. Chakrabarty* 447 U.S. 303, 309, 206 USPQ 193, 197 (1980).

⁶ 1 DONALD S. CHISUM, *Chisum on Patents* § 1.02[3] (2006) discussing 1 W. Robinson, *The Law of Patents for Useful Inventions* 270 (1890).

the subject matter it regards as its invention with a reasonable degree of clarity and particularity.⁷ In doing so, the “[a]pplicant may use functional language, alternative expressions, negative limitations, or any style of expression or format that makes clear the boundaries of the subject matter for which protection is sought.”⁸ Indeed, patent examiners “should *not* reject claims or insist on their own preferences if other modes of expression selected by applicants satisfy the statutory requirements.”⁹

To find, as the Examiner has done, that Appellant’s claims are indefinite under 35 U.S.C. 112, second paragraph, because “[i]t is not clear, which category of [the four delineated in 35 U.S.C. 101] the claimed subject matter belongs to,”¹⁰ is not in accordance with the law. In fact, according to MPEP § 2106,¹¹ a “manufacture” is “the production of articles for use from raw or prepared materials by giving to these materials new forms, qualities, properties, or combinations, whether by hand labor or by machinery.” Certainly, a specimen system having collection vessels in specified locations is a manufacture. To find otherwise, as the Examiner has done, requires some reasoned explanation, but the Examiner merely concludes that “[l]ocation of the [Appellant’s claimed] vessels is not a manufacture” without explaining how Appellant’s claims fail to describe man made items.¹² The Examiner feels that claiming a specimen container supplier, a specimen collection site, and a laboratory “would hardly have any statutory basis”, even though such a claim would indeed fall within the definition of a manufacture provided by MPEP § 2106.¹³ Thus, the Examiner misunderstands the law,¹⁴ and did not act in accordance with the law. Appellant’s claims are not indefinite under 35 U.S.C. 112, second paragraph, for

⁷ MPEP 2173.02.

⁸ MPEP 2173.01.

⁹ MPEP 2173.02 (emphasis added).

¹⁰ Paragraph 3 of Office Action mailed January 10, 2006.

¹¹ The Examiner cited MPEP 2106 in paragraph 3 of Office Action mailed January 10, 2006.

¹² Paragraph 18 of Office Action mailed January 10, 2006, Rejections under 112, second paragraph.

¹³ Id.

¹⁴ The Examiner repeatedly confounded the meaning of 35 U.S.C. 112, second paragraph. For another example, she questioned whether Appellant’s system “belongs to the claimed subject matter of the instant application.” Paragraph 2 of Office Action mailed January 10, 2006.

allegedly failing to describe statutory subject matter under 35 U.S.C. 101. Appellant may claim a manufacture under 35 U.S.C. 101 and doing so does not render such claims indefinite under 35 U.S.C. 112, second paragraph.

The Examiner also insisted that each of Appellant's claims 1-20 and 40-44 was indefinite under 35 U.S.C. 112, second paragraph, saying, "It is not apparent what particular structure of the diagnostic specimen system is recited in the claims, besides a particular structure cited for collection vessels. Location of a part of the system at a specific place cannot be considered 'a particular structure' of the diagnostic system."¹⁵ Patent claims, however, frequently recite elements in various positions, and those positions are attributes of the elements that are given weight in the evaluation of patentability. Literally thousands of issued U.S. patents employ the term "located at" or some very similar variation thereof in their claims to describe the subject matter protected. Furthermore, failing to recite a particular structure does not in and of itself render a claim indefinite. An applicant certainly may use clear functional language to define the scope of protection sought.¹⁶ So the Examiner is wrong to assume that an applicant's claims must recite a particular structure, and she is wrong again to say that Appellant's claims do not. Appellant may use the term "located at" to describe the subject matter it regards as its invention.

The Examiner also found that:

[I]t is not clear, what will happen to the subject matter of the claim, if a part of the system, after being located at the specified location for some time, will be on the way to a different location (e.g. disposal), or on the way from the manufacturing site. Also, it is not clear if the diagnostic system manufactured at the manufacturing site and still located at that site belongs to the claimed subject matter of the instant application. Furthermore, it is not clear, if the same vessels should always be present at these particular locations, or these vessels are moving from one place to another? If the vessels are moving and changing their location, how can such a system be definite?¹⁷

Thus, it appears that the Examiner imposed a requirement that Appellant's claims must describe a static system. The Examiner pointed to no authority supporting such a requirement,

¹⁵ Paragraph 3 of Office Action mailed January 10, 2006 (emphasis added).

¹⁶ MPEP 2173.01.

¹⁷ Paragraph 3 of Office Action mailed January 10, 2006 (emphasis added).

nor does any exist. In fact, definiteness does not preclude the inclusion of moving claim elements. The Examiner wonders “how the scope of the claims and the patentability of the claimed subject matter as a whole can be time variable” and questions whether “the patent becomes invalid [‘when the whole batch of the vessel is transported from one specific location to another specific location.’]”¹⁸ To answer the Examiner, Appellant claims systems having limitations stated by its claim language. Whether the claims would become invalid is not at issue under 35 U.S.C. 112, second paragraph. Appellant’s claimed systems may have moving elements, and the Examiner was wrong to reject the claims as indefinite for doing so.

The Examiner went on to find that “the vessel distribution facility (shelves with the vessels), the specimen collection facility (a special restricted area in the laboratory) and the specimen testing laboratory can be the same place” and “[concluded] that since the location of the vessels does not further limit their structure, the limitation recited in the independent claims after ‘wherein’ (excluding the structural elements related to the vessels themselves) does not bear any patentable weight.”¹⁹ Actually, the Examiner is correct in observing that the facilities can be very close, but that does not render the Appellant’s claims indefinite under 35 U.S.C. 112, second paragraph. Also, Appellant may specify limitations on its system that do limit the structure of its collection vessels. To assert that every limitation on Appellant’s system must be directed to its specimen vessels is imposing a requirement that is not in accordance with the law, and the Examiner pointed to no supporting patent law. Appellant may claim elements at specified locations, even if those locations can be in close proximity to one another, and Appellant is free to specify limitations on its specimen collection system that limit its system beyond the structure of its collection vessels.

Finally, the Examiner concluded that Appellant’s Claim 18 “is indefinite as to which data are stored at the vessel distribution facility.”²⁰ However, claiming “data” as an element of a system does not render the claim indefinite under 35 U.S.C. 112, second paragraph, despite the Examiner’s protestations. Definiteness does not require Appellant to specify the particular kind

¹⁸ Paragraph 13 of Office Action mailed January 10, 2006, Rejections under 112, second paragraph.

¹⁹ Id.

²⁰ Id.

of data stored on its electronic memory tags, so the Examiner was wrong again when she rejected Appellant's Claim 18 as indefinite for claiming data.

Definiteness of claim language under 35 U.S.C. 112 is analyzed in light of the content of the particular application disclosure, the teachings of the prior art, and the claim interpretation that would be given by one of ordinary skill in the art at the time of the invention.²¹ Potential infringers need to be apprised of the scope of patent protection defined by a patent's claims, and they would have no problem with Appellant's claims in that regard.

Figure 5 of Appellant's application illustrates, schematically, a specimen container supplier, a specimen collection site, and a laboratory. One of ordinary skill would understand that Appellant claims a system that includes a population of vessels. The vessels are at specified facilities and the vessels are *transportable* between the facilities, and in some claims, the vessels are transported between the facilities. Appellant's claims are not indefinite for failing to describe statutory subject matter. Nor are Appellant's claims indefinite for claiming data, or for limiting claim elements to specified locations. Therefore, the Examiner's rejections of Claims 1-20 and 40-44 as indefinite should be reversed.

B. Claims 1-4, 6-7, 9-12, 14-15, 19, 21, 38, 40-41, and 44 Are Not Anticipated by Petrick.

The Patent Office accorded Appellant a filing date of December 14, 2000 for the application that is the subject of this Appeal. After several official exchanges between the Examiner and Appellant, an Office Action mailed January 15, 2004, rejected claims of the application for the first time under 35 U.S.C. 102(e) over U.S. Patent 6,535,129 to Petrick, which issued March 18, 2003 on an application filed November 17, 2000. Appellant submitted Rule 1.131 declarations of co-inventors Jason Bowman, Danny Charles Bowman and David Michael Lewis showing invention of the claimed subject matter antedating the filing date of Petrick to remove the reference as prior art.²²

²¹ MPEP 2173.02.

²² Appellant first responded June 15, 2004 to the Office Action mailed January 15, 2004. The Patent Office then issued a Notice of Non-Compliant Amendment July 6, 2004, to which Appellant responded July 9, 2004. Appellant later also submitted a Supplemental Response to the June 15, 2004 Office Action on July 23, 2004. The declarations swearing behind Petrick are contained in these three submissions following the June 15, 2004 Office Action.

The examiner found no fault in the proof that applicant antedates Petrick. Instead, she “indicate[d] that [Appellant’s and Petrick’s] inventions are the same”²³ because, she asserted, Appellant’s specification and Petrick’s patent disclose common elements.²⁴ The Examiner found that, since both Appellant and Petrick disclose specimen vessels and business forms,²⁵ Appellant’s application is claiming the same patentable invention as Petrick’s patent.²⁶ Then, she “[took] into account a very short difference in the filing dates of the application and the patent” and ruled that “[Appellant’s] Declaration under 1.131 is not valid in this case.”²⁷

37 CFR 1.601(n) states the general rule for determining whether an application is claiming the same patentable invention as a patent thusly:

Invention “A” is a *separate patentable invention* with respect to invention “B” when invention “A” is new (35 U.S.C. 102) and non-obvious (35 U.S.C 103) in view of invention “B” assuming invention “B” is prior art with respect to invention “A”.

The predecessor of the Court of Appeals for the Federal Circuit held in *In re Eickmeyer*²⁸ that the PTO cannot deny an applicant an interference on the grounds that the applicant and a patentee are not interfering in fact and also deny the applicant the opportunity to swear behind the patent on the grounds that the applicant is claiming the same invention as the patentee. Accordingly, since an interference-in-fact requires a two-way analysis of the “same patentable invention” rule 1.601(n), such must also apply to the interpretation of Rule 1.131.

²³ Paragraph 18 of Office Action mailed January 10, 2006, Regarding Applicant’ patentable invention vs. Petrick’s US 6,535,129.

²⁴ Id.

²⁵ Id. The Examiner apparently asserted that Petrick’s business form and Appellant’s wireless electronic memory tag are one and the same with her statement that “...Applicants claim a population of vessels with attached business forms (the wireless electronic memory tag).” This is so even though the Examiner’s version of “the same patentable invention” analysis reads features disclosed in Petrick’s specification into its claims. Thus, under her analysis, Petrick’s business form should resemble one of the paper versions disclosed in Petrick’s specification at Figs. 3a and 3b, rather than the wireless electronic memory tag claimed by Appellant. So, her “same patentable invention” analysis improperly reads limitations into the claims and she appears to have inconsistently applied her own improper analysis.

²⁶ Paragraph 18 of Office Action mailed January 10, 2006, Regarding Applicant’ patentable invention vs. Petrick’s US 6,535,129.

²⁷ Id.

²⁸ 602 F.2d 674, 202 U.S.P.Q. 655 (CCPA 1979).

The Trial Section of the Interferences Division of the Board of Patent Appeals and Interferences in *Winter v. Fujita*²⁹ set forth a two-way analysis to determine the existence of an interference-in-fact. The Court of Appeals for the Federal Circuit uses the same test. *Medichem S.A. v. Rolabo S.L.*, 77 USPQ 2d 1865 (Fed. Cir. 2006). In the first step of the analysis, the claimed invention of Petrick is presumed to be prior art to the applicant. If Appellant's claim is new and non-obvious in view of Petrick's claim, the claims describe separate patentable inventions. If not, the second step is undertaken in which Appellant's claim is presumed to be prior art to Petrick's, and the reverse analysis is performed. If Petrick's claim is new and non-obvious in view of Appellant's claim, the claims describe separate patentable inventions. The claims describe the same patentable inventions only if Petrick's claimed invention anticipates or renders obvious Appellant's claimed invention and vice versa.³⁰ The analysis refers only to the parties' claims, not the remainder of the specifications.

B.1. Evaluation of Applicant's System Claims 1-17 and 40-43

Petrick's Claims 1 and 7 read:

1. A business form comprising:

a first portion providing chain of custody information therein; and
a second portion linking said form with at least one specimen;

wherein said business form further includes a wireless identification device associated therewith that electronically provides at least an identifier in response to a query for automatically establishing the chain of custody of said specimen, said wireless identification device being associated with the form such that de-associating the device from the form results in at least partial destruction of the form in a manner that is readily seen through visual inspection of the form.

7. The business form of Claim 1 wherein said wireless identification device is adhered directly to the specimen or to a container containing the specimen.

And Appellant's Claim 1 states:

²⁹ 53 USPQ2d 1234, 1243 (1999), reh'g denied, 53 USPQ2d 1478 (BPAI 2000).

³⁰ Id.

A diagnostic specimen system comprising a population of biomedical specimen collection vessels located at and transportable between a vessel distribution facility, a specimen collection facility, and a specimen testing laboratory facility, wherein each of the collection vessels includes a wireless electronic memory tag for non-contact storage and retrieval of information attached thereto such that the tag remains attached to the vessel as the vessel is transported between facilities.

B.1.(a) Assuming Petrick is Prior Art to Appellant for 1.601(n) Test

Assuming Petrick's claim is prior art, Appellant's claim is novel. Appellant's claim describes a diagnostic specimen system including a population of collection vessels having members at specified locations. Petrick's claim does not disclose multiple vessels at the specified locations. Appellant's claim is therefore new in view of Petrick's claimed invention.

Appellant's diagnostic specimen system is also not an obvious variation of Petrick's business form. Nothing in Petrick's claim teaches or suggests the vessels at various locations set forth in Appellant's claim. Thus, Appellant's claim is not an obvious variation. Appellant's claim is not even directed to the same subject matter. Petrick claims a business form; Appellant claims a system comprising a population of vessels. Therefore, Appellant is not claiming the same patentable invention as Petrick's Claim 1 or 7.

B.1.(b) Assuming Appellant Is Prior Art to Petrick for 1.601(n) Test

If Appellant's claim is assumed to be prior art to Petrick's, the same result obtains. Petrick's claim requires a new business form having two portions and a particular association between the business form and the wireless identification device. Appellant's claim does not disclose or suggest a business form (much less one having two portions) or any particular relationship between such a form and an identification device.³¹ Moreover, Petrick's Claim 7 discloses attaching a wireless identification device directly to a specimen, and Appellant does

³¹ This is so although Appellant's claim is broad enough to be infringed by a device having the features described by Petrick's claim. While some embodiments of Petrick could be implemented to infringe Claim 1, and *vice versa*, such infringements are not inevitable. If a practitioner of Appellant's Claim 1 does not use a business form, Petrick is not infringed. If a practitioner of Petrick does not have containers at the locations of Appellant's Claim 1, Appellant's Claim 1 is not infringed.

not. Thus, Petrick's claim is non-obvious in view of Appellant's claim and the inventions are separately patentable under the *Winter* analysis.

Even if the Board eschews *Winter* and risks violating the rule of *Eickmeyer* by applying the test as one-way only, applicant is not claiming the same invention as Petrick. Appellant's claim is new and non-obvious when Petrick's claim is presumed to be prior art.

B.2. Evaluation of Appellant's Method Claims 18-21 and 44

Petrack's Claim 8 recites:

A method of establishing a chain of custody comprising:
associating a business form and a radio frequency identification device with at least one object, said wireless identification device being associated with the form such that de-associating the device from the form results in at least partial destruction of the form in a manner that is readily seen through visual inspection of the form; and
using both the business form and the radio frequency identification device in combination to establish a chain of custody for the object including querying said device and receiving a response that is automatically used to establish said chain of custody.

And Appellant's Claim 18 reads:

A method for electronically storing information on a diagnostic or toxicology specimen vessel and remotely reading information from the vessel comprising:
providing a population of biomedical specimen vessels, each having a wireless electronic memory tag attached thereto, wherein the population includes members located at and transportable between a vessel distribution facility, a specimen collection facility, and a specimen testing laboratory facility;
electronically storing data on one of the electronic memory tags at the vessel distribution facility;
shipping members including the electronic memory tags attached thereto with electronically stored data from the vessel distribution facility to the specimen collection facility; and
reading the stored information from the electronic memory tag with a non-contact electronic reader or scanner at a specimen testing laboratory facility.

B.2.(a) Assuming Petrick Is Prior Art to Appellant for 1.601(n) Test

The Examiner asserts that Appellant's Claim 18 and Petrick's Claim 8 claim the same patentable invention, but Petrick's claim does not teach or suggest Appellant's providing claimed biomedical specimen collection vessels at its claimed facilities, or storing data at a vessel distribution facility. Neither does Petrick teach or suggest collecting a specimen from a donor as does Appellant's Claim 19, or collecting and storing an electronic signature, as do Appellant's Claim 20 and 44. So, Appellant's Claims 18-21 and 44 are both new and non-obvious in view of Petrick's Claim 8.

B.2.(b) Assuming Appellant Is Prior Art to Petrick for 1.601(n) Test

Neither of Appellant's Claims 18-21 or 44 teach or suggest the business form or Petrick's claimed particular association between Petrick's business form and its radio frequency identification device. So, Petrick's Claim 8 is new and non-obvious, and Appellant is not claiming the same patentable invention as the patent.

The Examiner insists that Appellant and Petrick claim the same patentable invention without showing that Petrick's claims anticipate or render Appellant's claims obvious. No doubt the Examiner has not done so because the task is impossible: Appellant is not claiming the same patentable invention as Petrick. Appellant can properly swear behind Petrick, so the rejections of Appellant's claims using Petrick as prior art should be reversed.

B.3. Appellant's Application and Petrick Are Classified in Unrelated Classes.

The PTO often asserts that inventions are patentably distinct and supportive of two patents in making restriction requirements. According to MPEP Section 808.02 separate classifications is a reason for insisting on restriction of distinct inventions. Petrick is classified in U.S. Class 340/572.1, relating to electrical communications. Completely unrelated to electrical communications is U.S. Class 436/56, where applicant's published application has been classified.³² So the PTO first classified Appellant's application in a separate class from that in which Petrick's patent is classified, and now finds that the application and the patent are claiming the same patentable invention.

³² To this point, the Examiner replies that Appellant's application contains both system and method claims, yet was not restricted. The relevance of this fact is left unexplained. Paragraph 18 of Office Action mailed January 10, 2006, Regarding Applicant's patentable invention vs. Petrick's US 6,535,129.

B.4. The Examiner's Comments Illuminate Her Errors

In Section 18 of the January 10, 2006, Office Action, the Examiner responds to Applicants' arguments. In the paragraph bridging pages 13 and 14, the Examiner says that the Applicants' make a statement that the Examiner does not quite understand, referring to Applicants' argument that if Applicant's claim is new and not obvious in view of Petrick's claim, the claims describe separate patentable inventions. The Examiner's stated misunderstanding highlights her legal error. In order to determine whether two applicants claim the same patentable invention, one must focus on the claims. That is what the rules say, that is what the Board and court say, but that is not what the Examiner did.

The Examiner goes on to say "[I]t appears that there is no case when the applicant's and Petrick's inventions can be the same." In this respect, the Examiner is correct, but unfortunately, the Examiner did not rely on this observation. Instead, she goes on to say that inventions are the same because Petrick claims a business form comprising a wireless electronic memory tag attached to a vessel (Claim 7), while the applicant's claim a population of vessels with attached business forms (the wireless electronic memory tag). This analysis is erroneous because it ignores material limitations of the claims. Petrick's claim 1 is to a business form that includes a first portion providing a chain of custody information and a second portion linking the form with a specimen. Further, the business form includes the wireless identification device, such that disassociating the device from the form results in at least a partial destruction of the form in a manner that is readily seen through visual inspection of the form. Applicant's claim has nothing like that.

Applicant's claim 1 recites a population of biomedical specimen collection vessels located at and transportable between a vessel distribution facility, a specimen collection facility and a specimen testing laboratory facility. Petrick's claims 1 and/or 7 do not have populations of vessels at these various facilities. The Examiner asserts that the location of the claimed vessels does not bear patentable weight. As pointed out above, the examiner is wrong in that respect, and that contributes to her error concerning whether or not applicant and Petrick are claiming the same patentable invention.

The Examiner goes on to discuss the recitation of the various locations in applicant's claim: "Moreover, contrary to applicants' statement, the vessels cannot be located at the specific locations all the time, because they are transported from one location to another, which destroys

patentability of the population of vessels: if the whole group of vessels is transported from one specific location to a different specific location, the patent would be invalid for the time period of their transportation.” But, there is no requirement that the vessels be located in specific locations all the time. The law simply does not care one way or the other. The Examiner’s statement that transporting the vessels destroys the patentability of the vessels and that the patent is invalid during the period of the transportation makes no sense. While it may be possible to consider certain combinations of vessels in various locations that do not infringe the claim, the fact that vessels may be situated at various locations cannot possibly invalidate the claims. However, such issues are simply irrelevant: as noted the claim is definite; the recitations are meaningful, and cannot give no patentable weight.

In the full paragraph on page 14, the Examiner addresses Applicants’ statement that Applicants’ claim does not disclose or suggest a business form like Petrick’s. The Examiner responds to this by focusing on Applicants’ specification, again ignoring the words of Applicants’ claims. As noted, it is the claims that are to be compared, not the specification. The examiner purports to be reading Applicants’ claims in light of the specification, but instead she wholesale imports limitations from the specification into the claim. Essentially, what the Examiner has done is to focus solely on the two specifications and ignore the fact that it is the claims that she is supposed to be comparing.

The next paragraph of the Office Action further illustrates the Examiner’s error. She asserts that she is reading Petrick’s claim reciting the business form with the wireless electronic tag attached to the vessel in light of the specification. She concludes that any routineer in the art can conclude that this is the Applicant’s population of vessels. How in the world one finds obvious the various locations claimed by Applicants’ from the words of Petrick’s claim is not enunciated. The Examiner makes no effort to make a showing of that.

In discussing claim 18, on page 15 of the Office Action, the Examiner asserts that Petrick’s claim 8 essentially repeats Applicants’ method of electronically storing information. Once again, the examiner is ignoring material limitations of Petrick’s claim, including the limitations “said wireless identification device being associated with a form of such that de-associating the device from the form results in at least partial destruction of the form in a manner that is readily seen through visual inspection of the form.” Applicants’ claim does not have any such limitation.

In the final paragraph that section on page 15 of the Office Action, the Examiner argues that she did not have a responsibility to specify an interference count, because the application is not in a stage of interference. But then she asserts that applicants' invention is no different than Petrick's to deny Applicants' access to Rule 131 to swear behind Petrick. If that is the case, then under the rule of the *Eickmeyer* case, Applicant should be entitled to provoke an interference and the typical process is for the examiner to propose a count.

In the final two lines of this paragraph, the Examiner goes on to say "taking into account a very short difference in the filing dates of the application and the patent, the declaration under 1.131 is not valid." The Examiner makes no explanation as to why she deems the short difference in the filing dates to have any pertinence, and indeed it seems there is no possible explanation. Another examiner error.

C. Claims 1, 6-7, 9, 14-15, 19, 21, 40-41 and 44 Are Not Anticipated by Berney.

C.1. Claims 1, 6-7, 9, 14-15, 21, and 40-41 Are Not Anticipated by Berney.

Berney discloses a system for registering useful information during analyses of blood in conventional glass test tubes 1.³³ Berney's electronic memory labels 4 are attached to supports 31 that are fixed on the test tubes 1³⁴ in a testing laboratory at the time of sample analysis.³⁵ The supports 31 have spring like shape for attaching the test tubes³⁶ and rest on a base 33 including a bus system 46 for transferring information to and from the labels 4 during analysis.³⁷ Berney does not disclose and is not concerned with vessels at a vessel distribution facility or a specimen collection facility. Berney's spring-like supports 31 suggest to one of ordinary skill in the art a temporary affixation to a test tube. At column 2, lines 29-30, Berney's statement that these allow a firm fixation of the label 30 onto the test tube 32 at the time of analysis clearly suggest

³³ Col. 1, Line 11 of Berney.

³⁴ Col. 2, Lines 22-24 of Berney.

³⁵ Col. 1, Line 18; Col 1, Line 36; Col. 1, Lines 64-65; Col. 2, Line 29; Col. 3, Lines 18-25; Col. 4, Line 7 of Berney (Emphasis added).

³⁶ Col. 2, Lines 28-30 of Berney.

³⁷ Col 2, Lines 34-56, Figs. 3 and 4 of Berney.

that affixation at that time is the only time of concern to Berney. In particular, a spring-loaded mount, which is obviously removable, does not suggest a chain of custody proof system.

Berney anticipates Appellant's claims only if each and every element as set forth in the claims is found either expressly or inherently described.³⁸ While she acknowledged that Berney does not expressly disclose Appellant's claimed inventions, the Examiner asserted that Berney inherently discloses Appellant's claimed population of biomedical specimen collection vessels.³⁹ But, to be inherent, the features of Appellant's claimed invention must *necessarily* be present in the Berney disclosure,⁴⁰ and Appellant's specified vessel locations are not even consistent with Berney's disclosure, much less, *necessarily present*. Berney's label provides a temporary mount to a test tube during analysis of the test tube contents in a laboratory; only one of the three facilities described by Appellant's claims. Thus, Berney does not inherently disclose any of Appellant's Claims 1, 6-7, 9, 14-15, 21 and 40-41. The Examiner's rejections of these claims should be reversed.

C.2. Claim 19 Is Not Anticipated by Berney.

Berney describes its process of performing blood analysis thusly:

[F]irstly the reference data of the patient under concern and the kind and number of analyses to be performed are fed directly from a central data base into the label. Secondly the date of analysis, the used analysis apparatus, the name of the service operator, the result data, etc are registered. Finally all this information is transferred to the centralized data bank of the patient.⁴¹

Thus, Berney's labels are attached in the lab and one of ordinary skill would appreciate that the labels are also removed in the lab, so that the labels can be reused with another test tube after the information is transferred from them to a centralized data bank. There is no reason to attach electronic labels to Berney's test tubes prior to sample collection because Berney says reference data of the patient is not transferred to the labels until during the time of sample

³⁸ MPEP 2131 citing *Verdegaal Bros. v. Union Oil Co. of California* 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

³⁹ Paragraph 6 of Office Action dated January 10, 2006.

⁴⁰ MPEP 2112 (IV.).

⁴¹ Col. 3, Lines 18-25.

analysis.⁴² Thus, Berney is concerned primarily with recording specimen analysis data, not complete chain of custody information, so Berney does not disclose electronic memory tags attached to vessels at a distribution facility, or distributing vessels having electronic memory tags to a collection facility. Therefore, Berney does not anticipate Appellant's Claim 19, and the Examiner's rejection of the claim should be reversed.

C.3. Claim 44 Is Not Anticipated by Berney.

Berney does not disclose collecting and storing the electronic signature of a specimen donor on an electronic memory tag at a specimen collection facility. Berney does not even disclose collecting an electronic signature, much less collecting and storing one at a collection facility. So Berney does not anticipate Appellant's Claim 44, and the Examiner's rejection of the claim should be reversed.

D. Claim 21 Is Patentable over Berney.

Although the Examiner rejected Claim 21 as anticipated by Berney, she also acknowledged that Berney does not disclose transporting vessels to a specimen-testing laboratory. But, she reasons, since transporting vessels is conventional medical practice, one of ordinary skill would have transported Berney's vessels, "because it allows tracking the vessels using Berney's inventive electronic tags on the specimen vessels."

An obviousness rejection based on a single prior art reference, however, must include evidence showing a suggestion or motivation to modify the reference to produce the allegedly obvious invention.⁴³ Subjective belief and unknown authority are not proper substitutes for objective evidence.⁴⁴ Indeed, a rejection of a claim in a utility application under 35 U.S.C. §

⁴² The Examiner argues at Paragraph 18 of the Office Action mailed January 10, 2006, Regarding anticipatory rejections over Berney under 102(b) that "[t]here is no way [Berney's] tag can be attached to the test tube *after* the collected sample was transported to the lab," but this assertion ignores the fact that Berney's test tube can be associated with a patient at the time of sample collection by means other than identifying the patient on electronic labels. The fact that Berney does not disclose such means evidences the purpose of Berney's labels: to store analysis data during the time of specimen analysis rather than to record chain of custody data.

⁴³ *In re Kotzab*, 217 F.3d 1365, 55 USPQ2d 1313 (Fed. Cir. 2000) ("Even when obviousness is based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference. See *B.F. Goodrich Co. v. Aircraft Braking Sys. Corp.*, 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996).")

⁴⁴ MPEP 2143.01 citing *In re Lee*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (discussing the importance of relying on objective evidence and making specific factual findings with respect to the motivation

103(a) is a legal conclusion which must be based on underlying factual inquiries including: (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of obviousness. The references must provide one of ordinary skill a motivation to combine their respective elements to yield the claimed invention.⁴⁵

In the case of *In re Lee*,⁴⁶ the Federal Circuit ruled that findings under 35 U.S.C. 103 must be reasoned ones. The Court further indicated that grounds supporting the findings must be clearly articulated on the record. And the evidence must come from the references, not the examiner's hindsight-based reconstruction of the applicant's claims:

With respect to Lee's application, neither the examiner nor the Board adequately supported the selection and combination of the Nortrup and Thunderchopper references to render obvious that which Lee described. The examiner's conclusory statements that "the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software" and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial" do not adequately address the issue of motivation to combine. This factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher." Thus the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion.⁴⁷

Contrary to this clear directive, the Examiner's findings are not reasoned ones. To conclude that it would have been obvious to transport Berney's vessels because transporting the vessels allows tracking the vessels, as the Examiner did, does not address the issue whether one of ordinary skill would have modified Berney to produce Appellant's invention. The Examiner

to combine references); See also *In re Dembiczak* 175 F.3d 994, 998, 50 USPQ 1614, 1616 (Fed. Cir. 1999) (disallowing the substitution of broad conclusory statements for evidence).

⁴⁵ *In Re Dembiczak*, 50 U.S.P.Q. 2d 1614 (Fed. Cir. 1999).

⁴⁶ 61 USPQ2d. 1430, 277 F3d 1338 (2002).

⁴⁷ *Id.*, 61 USPQ2d at 1434 (Internal citations omitted).

has not even attempted to cite objective evidence of obviousness. Her rejection is based in an alleged “conventional practice” combined with the subjective circular assertion that one would transport vessels to track vessels. In fact, Berney does not suggest distributing specimen collection vessels including wireless electronic memory tags to a specimen collection facility. Nor does Berney motivate one to do so. Berney is concerned with tracking information only during the time of specimen analysis. So the Examiner’s rejection of Claim 21 as unpatentable over Berney should be reversed.

E. Claims 5, 8, 13 And 18 Are Patentable Over Petrick or Berney in View of Leuenberger.

E.1.Claims 5 and 13 Are Patentable.

The Examiner concludes that it would have been obvious to store data including the identity of a specimen vessel and product information about the vessel on a memory tag. One of ordinary skill would allegedly modify Petrick to include such information ‘because vessels (containers) from different suppliers may vary, and therefore such information is important for handling containers properly, and also because information on a supplier and the product is always conventionally provided with all manufactured products, especially test tubes (vessels, containers).’⁴⁸

Of course, Petrick is not prior art, but still, the reference fails teach or suggest storing product information on an electronic memory tag attached to a specimen collection vessel. Leuenberger says that paper labels have been used to store product information on blood packs, but that the paper labels exhibit certain disadvantages overcome by the use of microporous plastic film labels.⁴⁹ Thus, Leuenberger suggests paper or plastic film labels, but fails to suggest using an electronic memory tag to store product information. Berney discloses storing information on an electronic label in a laboratory during the time of specimen analysis. Neither Petrick, Berney or Leuenberger suggests storing product or manufacturer information on an electronic memory tag at a vessel distribution facility. Even if the Examiner were correct in asserting that product information “is always conventionally provided with all manufactured

⁴⁸ Paragraph 11 of Office Action mailed January 10, 2006.

⁴⁹ Col. 1, Lines 18-55 of Leuenberger.

products,”⁵⁰ that fact says nothing about storing that information *on an electronic memory tag*, as Appellant claims. To say that one of ordinary skill would have combined Petrick or Berney with Leuenberger to produce an electronic memory tag having stored thereon manufacturer or product information is merely bridging the gap between the references by using that which Appellant teaches against its teacher. Thus, the Examiner’s rejections of Claims 5 and 13 are improper and should be reversed.

E.2. Claim 8 Is Patentable.

Claim 8 describes a diagnostic specimen system including a population of collection vessels each having attached thereto both an electronic memory tag and a label having an identifying bar code. Petrick is not prior art to Appellant’s application and Berney discloses an electronic label for registering all useful information during the time of analyses of a specimen contained in a test tube. The reference does not teach or suggest a label having an identifying bar code attached to its test tubes. And, although Leuenberger discloses the use of microporous plastic film labels that may include an identifying bar code 16,⁵¹ one of ordinary skill would find no suggestion or motivation to add Leuenberger’s bar code to the test tubes disclosed by Berney because Berney’s electronic label is provided for registering such information. Therefore, Appellant’s claim is patentable in view of the references and the Examiner’s rejection of Claim 18 should be reversed.

E.3. Claim 18 Is Patentable.

Petrick is not prior art to Appellant’s application and neither Berney nor Leuenberger discloses providing a population of biomedical specimen vessels or storing data on an electronic memory tag at a vessel distribution facility. Neither do the references disclose shipping members of a population of vessels including electronic memory tags from a vessel distribution facility to a specimen collection facility. Thus, the references do not teach or suggest all of Appellant’s claim limitations, so the Examiner’s rejection of Claim 18 should be reversed.

⁵⁰ Paragraph 11 of Office Action mailed January 10, 2006.

⁵¹ Col. 2, Lines 5-55 of Leuenberger.

F. Claims 16, 17, 20, 42, and 43 are patentable over Petrick or Berney in View of Hoffman or Fukuzaki.

F.1. Claims 16, 42 and 43 Are Patentable

The Examiner asserted that one of ordinary skill would have combined the electronic signature disclosed in Hoffman or Fukuzaki with Petrick's or Berney's disclosure "specifically for the reasons indicated by Hoffman and Fukuzaki, i.e. for securing electronically transferred data, and because the signature of 'the person under concern' is conventional in all diagnostic procedures."⁵² Petrick, however, is not prior art to Appellant's application and Berney does not disclose members of a population of specimen vessels at Appellant's claimed locations. Nor is there any apparent way to store an electronic signature of the donor of a toxicology specimen on Berney's test tubes, since the tags are attached during the time of sample analysis. Also, neither Hoffman nor Fukuzaki suggests including an encoded electronic signature of the donor of a toxicology specimen on an electronic memory tag. Hoffman is concerned with a method of correlative comparison of a biometrics sample for authenticating identification and Fukuzaki discloses an electronic document security system. Neither reference teaches or suggests a specimen vessel having a memory tag containing an encoded electronic signature.

F.2. Claim 17 is Patentable

The Examiner asserts that it would have been obvious to combine Hoffman or Fukuzaki with Petrick or Berney to produce Appellant's Claim 17.⁵³ Prior art references combined to establish obviousness, however, must teach or suggest all claim limitations.⁵⁴ Appellant claims a toxicology specimen system including a population of specimen vessels having wireless electronic memory tags storing data including an identification code for the vessel, the identity of the supplier of the vessel and product information about the vessel. Petrick is not prior art to Appellant's application but, even so, neither Petrick nor Berney teaches or suggests all the elements of Claim 17. Hoffman is concerned with a method of correlative comparison of a biometrics sample for authenticating identification and Fukuzaki discloses an electronic document security system. Neither Hoffman nor Fukuzaki teaches or suggests a toxicology

⁵² Paragraph 12 of Office Action mailed January 10, 2006.

⁵³ Paragraph 12 of Office Action mailed January 10, 2006.

⁵⁴ MPEP 2143.

specimen system including a population of specimen vessels having wireless electronic memory tags storing data including an identification code for the vessel, the identity of the supplier of the vessel and product information about the vessel. Therefore, Appellant's claim would not have been obvious to one of ordinary skill and the Examiner's rejection of the claim should be reversed.

F.3. Claim 20 is Patentable

Petrick is not prior art to Appellant's application and Neither Berney, Hoffman, nor Fukuzaki discloses a method that includes providing a population of vessels at a vessel distribution facility, distributing members to a collection facility, or collecting a specimen at the collection facility. Therefore, Appellant's Claim 20 would not have been obvious to one of ordinary skill in the art and the Examiner's rejection of the claim should be reversed.

G. Claims 2 and 10 are Patentable over Berney in view of RD 421048 A.

To establish a *prima facie* case of obviousness, a combination of prior art references must teach or suggest all the limitations of the allegedly obvious claimed invention.⁵⁵ Berney does not teach or suggest a specimen system including a population of vessels having members located at a vessel distribution facility, a specimen collection facility, and a specimen testing laboratory. RD 421048 A discloses a method for chemical management for tracking compounds within a chemical synthesis system including identification tags having passive transponders.⁵⁶ Modifying Berney to include RD 421048 A's passive transponders does not produce the diagnostic specimen system of Appellant's Claims 2 and 10 because RD421048 A does not disclose applicant's claimed vessel locations. Thus, the claims would not have been obvious and the Examiner's rejections Berney in view of RD 421048A should be reversed.

H. Claims 3-4 and 11-12 are Patentable over Berney in View of Stevens.

The Examiner asserts that it would have been obvious "to improve Berney's container comprising the electronic tag by adding a label with a barcode and providing the same

⁵⁵ Id.

⁵⁶ ABSTRACT of RD 421048 A.

information to the electronic tag in the same way Stevens labeled his container, because this serves the same purpose that Stevens disclosed in his invention, i.e. to ‘create a link between the container, the patient and the test request forms’, or any other forms associated with using this container.”⁵⁷

Stevens discloses a sample collection tube 20 and a label 40 comprising a permanent portion 50 having a barcode 90 and a peel away portion 70 for affixation to a test request form or to another container or item.⁵⁸ Berney discloses an electronic label that provides for registration of *all* useful information required for analysis of a blood sample, however, and thus *eliminates* the need for jotting down and manual transfer of information.⁵⁹

Therefore, Combining Stevens’ barcode associated with a manual entry form with Berney’s disclosure would destroy Berney’s purpose of eliminating manual entry of information, so one of ordinary skill would not modify the references as proposed by the Examiner,⁶⁰ and even if one were to make such a modification, the result would still not produce Appellant’s claimed vessel locations. Accordingly, the obviousness rejection of each of Claims 3-4 and 11-12 is improper and should be reversed.

I. Claim 38 is Patentable over Berney in View of Bowman.

The Examiner asserted it would have been obvious to modify Berney’s specimen collection vessel by adding the tamper-indicating seal disclosed by Bowman “so that any attempted tampering with the specimen will be indicated by at least partial destruction of the seal.”⁶¹ Berney discloses electronic memory labels for registering all useful information during blood analyses and Bowman discloses a chain-of-custody bag 10 for the sealing there within during transportation to an analysis site a specimen taken at a remote location.⁶² Modifying Berney this way, however, is not suggested by the references. Berney is not concerned with

⁵⁷ Paragraph 14 of Office Action mailed January 10, 2006 quoting Bowman at Column 1, Line 13-18.

⁵⁸ Col. 5, Lines 25-27; Col. 6, Lines 19-21; Figure 8 of Stevens.

⁵⁹ Col. 1, Lines 30-32 of Berney.

⁶⁰ MPEP 2143.01(V.).

⁶¹ Paragraph 15 of Office Action mailed January 10, 2006.

⁶² Col. 3, Lines 9-19 of Bowman.

transporting vessels from a collection facility to a laboratory, so there is no risk of tampering that needs evidencing. Berney's test tubes are provided with caps 2 that can be removed to permit access to a blood specimen;⁶³ so adding Bowman's seal to Berney's test tubes would interfere with removal of Berney's cap during specimen analysis. Therefore, the references would not have suggested such a modification,⁶⁴ and the Examiner's rejection of Claim 38 should be reversed.

J. Claim 8 is Patentable over Berney in view of RD421048 A, Stevens and Leuenberger.

The Examiner further asserts that it would have been obvious to include product information on a thrice-modified version of Berney "because, first this is a conventional information always provided with the products, and second, because the identity of the supplier may assist in the proper handling the container."⁶⁵ Neither of these proffered motives, however, explains why one would be motivated to store supplier information *on an electronic memory tag*, as Appellant claims, rather than marking the product itself, as Leuenberger suggests. Thus, they fail to address the question whether one of ordinary skill would have been motivated to combine the references to produce the *claimed invention*. Arguments made above are also applicable here. Therefore, the Examiner has failed to present a *prima facie* case of obviousness with respect to Claim 8, and the rejection of this claim should be reversed.

K. Claim 17 is Patentable over Berney in View of RD 421048 A, Stevens, Leuenberger and Hoffman or Fukuzaki.

The Examiner asserts that one of ordinary skill would have combined the encoded electronic signature of Hoffman or Fukuzaki with a thrice-modified version of Berney to produce Appellant's claimed invention.⁶⁶ Berney, however, discloses logging information concerning the person under concern in a specimen analysis laboratory, and neither Hoffman nor Fukuzaki suggest storing a signature on an electronic memory tag. Nor is there any apparent way to store

⁶³ Col. 1, Line 62, Fig. 1 of Berney.

⁶⁴ MPEP 2143.01(V.).

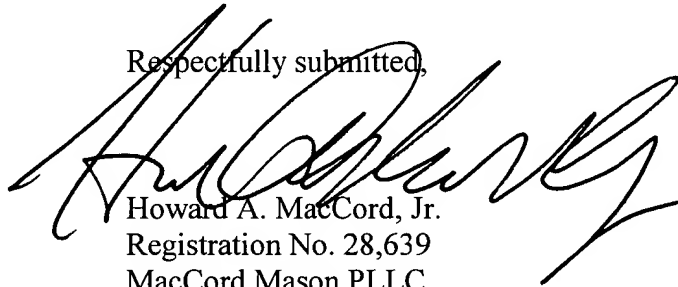
⁶⁵ Paragraph 16 of Office Action mailed January 10, 2006.

⁶⁶ Paragraph 17 of Office Action mailed January 10, 2006.

an electronic signature of the donor of a toxicology specimen on Berney's labels, since they are attached during the time of sample analyses. Also, Hoffman is concerned with a method of correlative comparison of a biometrics sample for authenticating identification and Fukuzaki discloses an electronic document security system. Neither reference teaches or suggests a specimen vessel having a memory tag containing an encoded electronic signature. Therefore, the Examiner's rejection of Claim 17 should be reversed.

The Examiner's rejection of Claims 1-21, 38, 40-44 should be reversed.

Respectfully submitted,



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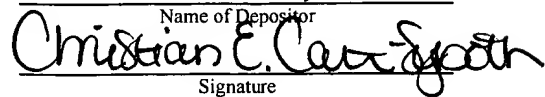
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8. Claims Appendix

The appealed claims are as follows:

1. A diagnostic specimen system comprising a population of biomedical specimen collection vessels located at and transportable between a vessel distribution facility, a specimen collection facility, and a specimen testing laboratory facility, wherein each of the collection vessels includes a wireless electronic memory tag for non-contact storage and retrieval of information attached thereto such that the tag remains attached to the vessel as the vessel is transported between facilities.

2. A diagnostic specimen system as claimed in claim 1 wherein each electronic memory tag includes a radio frequency transponder.

3. A diagnostic specimen system as claimed in claim 1 wherein each electronic memory tag contains stored data including an identification code for the vessel.

4. A diagnostic specimen system as claimed in claim 3 further including a label imprinted with a bar code attached to each vessel, the bar code identifying the vessel.

5. A diagnostic specimen system as claimed in claim 1 wherein each electronic memory tag contains stored data including the identity of a supplier of the vessel and product information about the vessel.

6. A diagnostic specimen system as claimed in claim 1 wherein an electronic memory tag contains stored data including identifying information about a specimen contained in the vessel and about the specimen donor.

7. A diagnostic specimen system as claimed in claim 6 wherein an electronic memory tag contains stored data further including definition of the analytical tests to be performed on the specimen in the vessel.

8. A diagnostic specimen system comprising:
a population of collection vessels located at and transportable between a vessel distribution facility, a specimen collection facility, and a specimen testing laboratory facility, wherein each of the collection vessels includes a wireless electronic memory tag for non-contact storage and retrieval of information attached thereto such that the tag remains attached to the vessel as the vessel is transported between facilities;

data stored on an electronic memory tag including an identification code for the vessel, the identity of the supplier of the vessel and product information about the vessel, identifying information about a specimen contained in the vessel and about the specimen donor, and definition of the analytical tests to be performed on the specimen in the vessel; and

a label imprinted with an identifying bar code attached to each vessel.

9. A toxicology specimen system comprising a population of collection vessels, each configured to receive and contain a toxicology specimen and having a wireless electronic memory tag attached to the vessel for non-contact storage and retrieval of information, wherein

the population includes members located at and transportable between a vessel distribution facility, a specimen collection facility, and a specimen testing laboratory, wherein each of the collection vessels includes a wireless electronic memory tag for non-contact storage and retrieval of information attached thereto such that the tag remains attached to the vessel as the vessel is transported between facilities.

10. A toxicology specimen system as claimed in claim 9 wherein each electronic memory tag includes a radio frequency transponder.

11. A toxicology specimen system as claimed in claim 9 wherein each electronic memory tag contains stored data including an identification code for the vessel.

12. A toxicology specimen system as claimed in claim 11 further including a label imprinted with an identifying bar code attached to each vessel.

13. A toxicology specimen system as claimed in claim 9 wherein each electronic memory tag contains stored data including the identity of the supplier of the vessel and product information about the vessel.

14. A toxicology specimen system as claimed in claim 9 wherein an electronic memory tag contains stored data including identifying information about a specimen contained in the vessel and about the specimen donor.

15. A toxicology specimen system as claimed in claim 14 wherein an electronic memory tag contains stored data further including definition of the analytical tests to be performed on the specimen in the vessel.

16. A toxicology specimen system as claimed in claim 9 wherein an electronic memory tag contains stored data including an encoded electronic signature of the donor of a toxicology specimen.

17. A toxicology specimen system comprising:
a population of biomedical specimen collection vessels, wherein the population includes members located at and transportable between a vessel distribution facility, a specimen collection facility, and a specimen testing laboratory facility, each vessel having a wireless electronic memory tag attached to the vessel such that the tag remains attached to the vessel as the vessel is transported between facilities, the electronic memory tag including a radio frequency transponder for non-contact storage and retrieval of information; data stored on the electronic memory tags including an identification code for the vessel, the identity of the supplier of the vessel and product information about the vessel, identifying information about a specimen contained in the vessel and about the specimen donor, definition of the analytical tests to be performed on the specimen in the vessel, and an encoded electronic signature of the donor of the toxicology specimen in the vessel; and a label imprinted with an identifying bar code attached to each vessel.

18. A method for electronically storing information on a diagnostic or toxicology specimen vessel and remotely reading information from the vessel comprising:

providing a population of biomedical specimen vessels, each having a wireless electronic memory tag attached thereto, wherein the population includes members located at and transportable between a vessel distribution facility, a specimen collection facility, and a specimen testing laboratory facility;

electronically storing data on one of the electronic memory tags at the vessel distribution facility;

shipping members including the electronic memory tags attached thereto with electronically stored data from the vessel distribution facility to the specimen collection facility; and

reading the stored information from the electronic memory tag with a non-contact electronic reader or scanner at a specimen testing laboratory facility.

19. A method for recording information about a diagnostic or toxicology specimen on a diagnostic or toxicology specimen vessel comprising:

providing a population of biomedical specimen vessels, each having a wireless electronic memory tag attached to the vessel at a vessel distribution facility;

distributing population members including the wireless electronic memory tag attached thereto to a specimen collection facility;

collecting a specimen from a donor in the specimen container at the specimen collection facility; and

electronically storing information about the specimen, donor, and/or tests to be performed on the specimen on the electronic memory tag.

20. A method as claimed in claim 19 further including collecting and storing an electronic signature of the specimen donor on the electronic memory tag at the specimen collection facility.

21. A method as claimed in claim 19 further including transporting the member vessel with collected specimen from the specimen collection facility to a specimen testing laboratory and storing the results of the analytical tests performed on the specimen in the vessel on the electronic memory tag at the specimen testing laboratory.

38. A toxicology specimen system comprising a collection vessel configured to receive and contain a toxicology specimen, a tamper-indicating seal, and wireless electronic memory tag attached to the vessel such that the tag remains attached to the vessel as the vessel is transported, the tag for non-contact storage and retrieval of information and wherein the electronic memory tag contains stored data including an encoded electronic signature of the donor of a toxicology specimen.

40. A diagnostic specimen system as claimed in claim 1 further including an electronic database accessible from the specimen collection facility for storing data entered at the collection facility.

41. A diagnostic specimen system as claimed in claim 40 further including an electronic network connecting the specimen collection facility to the specimen testing laboratory for transmitting data from the collection facility to the testing laboratory.

42. A toxicology specimen system comprising a population of collection vessels, each configured to receive and contain a toxicology specimen and having a wireless electronic memory tag attached to the vessel for non-contact storage and retrieval of information, the memory tag containing stored data including an encoded electronic signature of the donor of a toxicology specimen, wherein the population includes a member at a vessel distribution facility, a member at a specimen collection facility, and a member at a specimen testing laboratory facility and wherein the members are transportable between the facilities and the tag is attached to the vessel such that it remains attached to the vessel as the vessel is transported between facilities.

43. A toxicology specimen system comprising:
a biomedical specimen collection vessel and a tamper-indicating, wireless electronic memory tag attached to the vessel such that the tag remains attached to the vessel as the vessel is shipped to between a between a vessel distribution facility, a specimen collection facility, and a specimen testing laboratory facility, the tag including a radio frequency transponder for non-contact storage and retrieval of information;

data stored on the electronic memory tag including an identification code for the container, the identity of the supplier of the vessel and product information about the vessel, identifying information about a specimen contained in the vessel and about the specimen donor,

definition of the analytical tests to be performed on the specimen in the vessel, and an encoded electronic signature of the donor of the toxicology specimen in the vessel; and
a label imprinted with an identifying bar code.

44. A method for recording information about a diagnostic or toxicology specimen on a diagnostic or toxicology specimen vessel comprising:

providing a population of biomedical specimen vessels, each having a wireless electronic memory tag attached to the vessel, wherein the population includes a member at a vessel distribution facility, a member at a specimen collection facility, and a member at a specimen testing laboratory facility, and wherein each of the vessels includes a wireless electronic memory tag attached thereto such that the tag remains attached to the vessel as the vessel is transported between facilities;

collecting a specimen from a donor in the specimen vessel at the specimen collection facility;

electronically storing information about the specimen, donor, and/or tests to be performed on the specimen on the electronic memory tag; and

collecting and storing the electronic signature of the specimen donor on the electronic memory tag at the specimen collection facility.

9. Evidence Appendix

A. These references were cited by the Examiner in making rejections, and applicant relies on portion of them to show the errors of the rejections. Copies are attached.

Patent Number or Document Number	1st Named Inventor	Examiner Cited in Office Action Dated
6,535,129	Petrick	10 January 2006
5,613,012	Hoffman	10 January 2006
5,777,303	Berney	10 January 2006
5,135,313	Bowman	10 January 2006
EP 1,004,359 A2	Stevens	10 January 2006
5,314,421	Leuenberger	10 January 2006
RD 421048 A		10 January 2006
5,948,103	Fukuzaki	10 January 2006

B. Additional evidence submitted by applicant.

Declarations under Rule 1.131 of Jason Bowman, Danny Charles Bowman and David Michael Lewis, and Exhibits thereto. Copies are attached.

10. Related Proceedings

None.



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Danny Charles Bowman

Serial No.: 09/737,185

Examiner: Gakh

Filed: December 14, 2000

Art Unit: 1743

For: **PAPERLESS CHAIN OF CUSTODY EVIDENCE FOR LAB SAMPLES**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

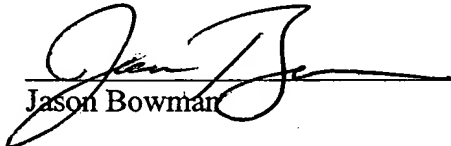
DECLARATION UNDER RULE 1.131

JASON BOWMAN does hereby say as follows:

1. I am one of the inventors of the above-identified patent application.
2. I have attached copies of evidence that the above-identified patent application was conceived in the United States or a NAFTA country before November 17, 2000 and applicants were diligent to a constructive redirection to practice from a time prior to November 17, 2000, until December 14, 2000. Dates not specified herein have been redacted but were prior to November 17, 2000:
 - a. a draft of the application for the PAPERLESS CHAIN OF CUSTODY FOR LAB SAMPLES was developed with the assistance of applicants' lawyers by a date prior to November 17, 2000, and a copy is the attached Exhibit A;
 - b. a final draft with formal documents for signature was forwarded by counsel on December 5, 2000;
 - c. The inventors reviewed and approved the application for filing, and the formal documents accompanying the application were signed December 11, 2000, and forwarded to counsel for filing in the PTO on December 14, 2000.

d. from the period beginning at the latest when the "final draft" of the application was developed prior to November 17, 2000 until December 14, 2000, when the application was filed, the inventors of the subject matter of the PAPERLESS CHAIN OF CUSTODY FOR LAB SAMPLES proceeded diligently in all matters regarding the filing of the application.

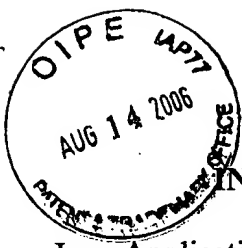
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and such willful false statements may jeopardize the validity of the application or any patent issued thereon.



Jason Bowman

6/2/2004

Date



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Danny Charles Bowman

Serial No.: 09/737,185

Examiner: Gakh

Filed: December 14, 2000

Art Unit: 1743

For: **PAPERLESS CHAIN OF CUSTODY EVIDENCE FOR LAB SAMPLES**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

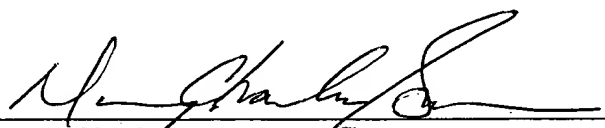
DECLARATION UNDER RULE 1.131

DANNY CHARLES BOWMAN does hereby say as follows:

1. I am one of the inventors of the above-identified patent application.
2. I have attached copies of evidence that the above-identified patent application was conceived in the United States or a NAFTA country before November 17, 2000 and applicants were diligent to a constructive redirection to practice from a time prior to November 17, 2000, until December 14, 2000. Dates not specified herein have been redacted but were prior to November 17, 2000:
 - a. a draft of the application for the PAPERLESS CHAIN OF CUSTODY FOR LAB SAMPLES was developed with the assistance of applicants' lawyers by a date prior to November 17, 2000, and a copy is the attached Exhibit A;
 - b. a final draft with formal documents for signature was forwarded by counsel on December 5, 2000;
 - c. The inventors reviewed and approved the application for filing, and the formal documents accompanying the application were signed December 11, 2000, and forwarded to counsel for filing in the PTO on December 14, 2000.

d. from the period beginning at the latest when the "final draft" of the application was developed prior to November 17, 2000 until December 14, 2000, when the application was filed, the inventors of the subject matter of the PAPERLESS CHAIN OF CUSTODY FOR LAB SAMPLES proceeded diligently in all matters regarding the filing of the application.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and such willful false statements may jeopardize the validity of the application or any patent issued thereon.



Danny Charles Bowman

6/01/04

Date



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Danny Charles Bowman

Serial No.: 09/737,185

Examiner: Gakh

Filed: December 14, 2000

Art Unit: 1743

For: **PAPERLESS CHAIN OF CUSTODY EVIDENCE FOR LAB SAMPLES**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

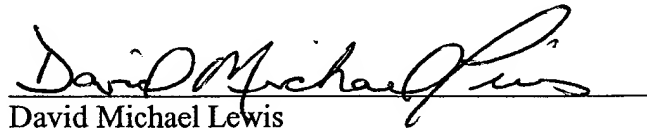
DECLARATION UNDER RULE 1.131

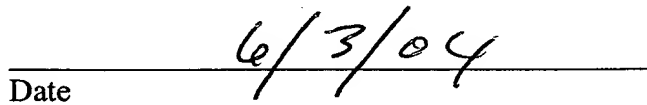
DAVID MICHAEL LEWIS does hereby say as follows:

1. I am one of the inventors of the above-identified patent application.
2. I have attached copies of evidence that the above-identified patent application was conceived in the United States or a NAFTA country before November 17, 2000 and applicants were diligent to a constructive redirection to practice from a time prior to November 17, 2000, until December 14, 2000. Dates not specified herein have been redacted but were prior to November 17, 2000:
 - a. a draft of the application for the PAPERLESS CHAIN OF CUSTODY FOR LAB SAMPLES was developed with the assistance of applicants' lawyers by a date prior to November 17, 2000, and a copy is the attached Exhibit A;
 - b. a final draft with formal documents for signature was forwarded by counsel on December 5, 2000;
 - c. The inventors reviewed and approved the application for filing, and the formal documents accompanying the application were signed December 11, 2000, and forwarded to counsel for filing in the PTO on December 14, 2000.

d. from the period beginning at the latest when the "final draft" of the application was developed prior to November 17, 2000 until December 14, 2000, when the application was filed, the inventors of the subject matter of the PAPERLESS CHAIN OF CUSTODY FOR LAB SAMPLES proceeded diligently in all matters regarding the filing of the application.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and such willful false statements may jeopardize the validity of the application or any patent issued thereon.


David Michael Lewis


Date

*** TX REPORT ***

TRANSMISSION OK

TX/RX NO 0061
CONNECTION TEL 820*2552*011*6650209
SUBADDRESS
CONNECTION ID
ST. TIME 11/09 14:28
USAGE T 13'17
PGS. SENT 32
RESULT OK

Rhodes & Mason

ATTORNEYS AT LAW

A Professional Limited Liability Company

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HOWARD A. MacCORD, JR.
JACK B. HICKS
WILLIAM J. MASON
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JEFFREY R. McFADDEN
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GILBERT J. ANDIA, JR.
STANISLAV ANTOLIN
AMY H. FIX
LEWIS S. ROWELL
KIMBERLY BULLOCK GATLING
CRAIG H. POPALIS

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Of Counsel:

JOSEPH W. MOSS
MATTHEW L. MASON

Other Offices:
Research Triangle, NC
Wilmington, NC

Original Will Follow Via:

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| <input type="checkbox"/> Mail | <input type="checkbox"/> Courier |
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| <input type="checkbox"/> Without Enclosures | <input type="checkbox"/> International Airmail |
| <input type="checkbox"/> Will <u>Not</u> Follow | |

TELEFAX COVER SHEET

TO:
Mr. Danny Bowman

FROM:
Art MacCord

ORGANIZATION/FIRM:
GBF, Inc.

DATE:
November 9, 2000

FAX NUMBER:
(336) 665-0209

RECIPIENT'S PHONE NUMBER:
(336) 665-0205

TOTAL # OF PAGES
(Including Cover): 31

YOUR E-MAIL ADDRESS:
amaccord@rhodesmason.com

RE:

Paperless Chain of Custody Evidence for Lab Samples

EXHIBIT A -

Rhodes & Mason

ATTORNEYS AT LAW

A Professional Limited Liability Company

C. ROBERT RHODES
EDWARD W. RILEE
HOWARD A. MacCORD, JR.
JACK B. HICKS
WILLIAM J. MASON
JAMES L. LESTER
JEFFREY R. McFADDEN
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MATTHEW L. MASON

Other Offices:
Research Triangle, NC
Wilmington, NC

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- | | |
|---|--|
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| <input type="checkbox"/> Hand Delivery | <input type="checkbox"/> With Enclosures |
| <input type="checkbox"/> Without Enclosures | <input type="checkbox"/> International Airmail |
| <input type="checkbox"/> Will <u>Not</u> Follow | |

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FAX NUMBER:
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(336) 665-0205

TOTAL # OF PAGES
(Including Cover): 31

YOUR E-MAIL ADDRESS:
amaccord@rhodesmason.com

RE:
Paperless Chain of Custody Evidence for Lab Samples

NOTES/COMMENTS:

Confidentiality Notice

The information contained in this fax transmittal is privileged and confidential, intended for the addressee only. If you are neither the intended recipient nor the employee or agent responsible for delivering this message to the intended recipient, any disclosure of this information in any way or taking of any action in reliance on this information is strictly prohibited. If you have received this fax in error, please notify the person transmitting the information immediately.

Christian Carter

Telefax Operator

Rhodes & Mason

ATTORNEYS AT LAW

A Professional Limited Liability Company

C. ROBERT RHODES
EDWARD W. RILEE
HOWARD A. MacCORD, JR.
JACK B. HICKS
WILLIAM J. MASON
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www.rhodesmason.com

Of Counsel:

JOSEPH W. MOSS
MATTHEW L. MASON

Other Offices:

Research Triangle, NC
Wilmington, NC

via fax

November 9, 2000

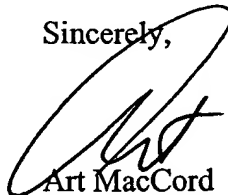
Mr. Danny Bowman
GBF, Inc.
P. O. Box 18744
Greensboro, NC 27419

Re: **Paperless Chain of Custody Evidence for Lab Samples**
Our File No. 2552-011

Dear Danny:

Enclosed is a final draft of the subject patent application. Please review the application and provide your comments. Also, I left a voice-mail message today requesting identification of the inventors of your invention. Once we have your comments and the names and addresses of the inventors, we will prepare the necessary documents for submittal of your application to the PTO.

Sincerely,



Art MacCord

HAM/CHP/cc

Rhodes & Mason

ATTORNEYS AT LAW

A Professional Limited Liability Company

C. ROBERT RHODES
EDWARD W. RILEE
HOWARD A. MacCORD, JR.
JACK B. HICKS
WILLIAM J. MASON
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FAX (336) 271-2830
www.rhodesmason.com

Of Counsel:

JOSEPH W. MOSS
MATTHEW L. MASON

Other Offices:

Research Triangle, NC
Wilmington, NC

December 5, 2000

Mr. Danny Bowman
GBF, Inc.
410-J Gallimore Dairy Road
P.O. Box 18744
Greensboro, NC 27419

Re: **Patent Application for PAPERLESS CHAIN OF
CUSTODY EVIDENCE FOR LAB SAMPLES**
Our File No. 2552-011

Dear Danny:

Enclosed is the above-identified utility patent application, including Inventor's Declaration; drawings; Assignment; Power of Attorney; and Small Entity Form, which are ready for signature.

The inventors should carefully review the text, Inventor's Declaration, drawings and Assignment. If any minor changes need to be made, they may be made in permanent ink with the inventors' initials and the date in the adjacent margin. No changes may be made once the application has been signed. If major changes are needed, please mark up the application as needed and return it to me for preparation of a freshly printed text.

Once the application is in good form, please sign and date at all places marked with a red "x." Have an officer of the company review and sign the Power of Attorney. After signing and dating, please return all of the application papers to us for filing with the Patent and Trademark Office (PTO).

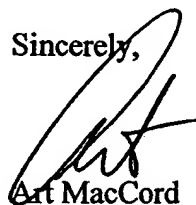
Exhibit B

Mr. Danny Bowman
December 5, 2000
Page Two

Also enclosed is an Important Legal Notice, which briefly describes the Duty of Candor owed to the PTO by patent applicants. If it suggests anything that needs to be submitted to the PTO that I don't already know about, please let me know.

I appreciate your allowing us to be of service to you.

Sincerely,

A handwritten signature in black ink, appearing to read 'Art MacCord', written over the printed name.

Art MacCord

AM/CHP/cc/lis
Enclosures

IMPORTANT INFORMATION FOR PATENT APPLICANTS

To: Inventors

Subject: The Requirements of United States Patent Law

ALL OF US INVOLVED WITH THIS APPLICATION ARE CHARGED WITH A DUTY OF CANDOR AND GOOD FAITH TOWARD THE PATENT EXAMINER. This means we must comply with regulations which require us to disclose all material information we are aware of having a bearing on the patentability of your invention.

INFORMATION IS MATERIAL IF IT, BY ITSELF OR WITH ANOTHER ITEM OF INFORMATION, DISCLOSES OR SUGGESTS THE INVENTION OR IS OTHERWISE INCONSISTENT WITH STATEMENTS WE ARE MAKING TO THE PATENT OFFICE. Information such as prior art having a bearing on the patentability of your claimed invention would therefore be material. Prior art may include:

- a) articles, patents, product announcements, technical reports, lectures or other material of others which might be considered as pertaining to your invention published prior to your date of invention;
- b) any public use or demonstration of your invention or of apparatus or methods which might be considered as pertaining to your invention more than one year before your application is filed;
- c) any sale or offer for sale of products incorporating your invention or made by its use more than one year before your application is filed;
- d) any commercial machine or product of which your invention is an improvement;
- e) any pertinent prior work of others (except fellow employees) of which you have knowledge.

IT IS ESSENTIAL THAT ALL ITEMS NOTED ABOVE, AS WELL AS ANY OTHER INFORMATION YOU BELIEVE MAY HAVE A BEARING ON THE NEWNESS OR OBVIOUSNESS OF THE CLAIMED INVENTION, BE BROUGHT TO OUR ATTENTION PROMPTLY. We can review the information to determine if the law requires its disclosure to the Patent Examiner. In this manner, you can satisfy your duty of disclosure and we can insure that all material information is disclosed to the U.S. Patent and Trademark Office. This also works to the patent owner's benefit because a more thoroughly examined patent is less subject to attack later on.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) & 1.27(c))—SMALL BUSINESS CONCERN

Docket Number (Optional)

2552-011

Applicant, Patentee, or Identifier: Danny Bowman, et al.

Application or Patent No.: _____

Filed or Issued: _____

Title: PAPERLESS CHAIN OF CUSTODY EVIDENCE FOR LAB SAMPLES

I hereby state that I am

- ☐ the owner of the small business concern identified below:
☒ an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF SMALL BUSINESS CONCERN GBF, Inc.

ADDRESS OF SMALL BUSINESS CONCERN 410-J Gallimore Dairy Road, Post Office Box 18744,
Greensboro, NC 27419

I hereby state that the above identified small business concern qualifies as a small business concern as defined in 13 CFR Part 121 for purposes of paying reduced fees to the United States Patent and Trademark Office. Questions related to size standards for a small business concern may be directed to: Small Business Administration, Size Standards Staff, 409 Third Street, SW, Washington, DC 20416.

I hereby state that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention described in:

- ☒ the specification filed herewith with title as listed above.
☐ the application identified above.
☐ the patent identified above.

If the rights held by the above identified small business concern are not exclusive, each individual, concern, or organization having rights in the invention must file separate statements as to their status as small entities, and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern, or organization having any rights in the invention is listed below:

- ☒ no such person, concern, or organization exists.
☐ each such person, concern, or organization is listed below.

Separate statements are required from each named person, concern or organization having rights to the invention stating their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

NAME OF PERSON SIGNING Danny Bowman

TITLE OF PERSON IF OTHER THAN OWNER President

ADDRESS OF PERSON SIGNING 410-J Gallimore Dairy Road, P.O. Box 18744, Greensboro, NC 27419

SIGNATURE X

DATE X

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Bowman, et al.
For: PAPERLESS CHAIN OF CUSTODY EVIDENCE FOR LAB SAMPLES
Filed concurrently herewith.
Serial Number to be assigned.

Commissioner for Patents
Washington, D.C. 20231

POWER OF ATTORNEY

Sir:

The undersigned, assignee of the entire interest in and to an application of Bowman, et al. for U.S. Letters Patent for PAPERLESS CHAIN OF CUSTODY EVIDENCE FOR LAB SAMPLES, by an assignment document being recorded contemporaneously herewith, hereby appoints the firm of Rhodes & Mason, P.L.L.C., comprising C. Robert Rhodes, Reg. No. 24,200, Edward W. Rilee, Reg. No. 31,869, Howard A. MacCord, Jr., Reg. No. 28,639, Jack B. Hicks, Reg. No. 34,180, James L. Lester, Reg. No. 38,721, William J. Mason, Reg. No. 22,948, Gilbert J. Andia, Jr., Reg. No. 38,815, Jeffrey R. McFadden, Reg. No. 46,916, Benjamin S. Withrow, Reg. No. 40,876, Amy H. Fix, Reg. No. 42,616, Stanislav Antolin, Reg. No. 34,979, and Lewis S. Rowell, Reg. No. 45,469, as my attorneys and/or agents with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent and Trademark Office connected therewith.

Furthermore, in accordance with 37 CFR §3.73(b), the undersigned hereby states that the documentary evidence of a chain of title from the original owner to the assignee, i.e. assignment

ASSIGNMENT

This Assignment made by us, Danny Bowman, a citizen of the United States of America, residing at 3901 Gaston Road, City of Greensboro, County of Guilford, State of North Carolina, and Jason Bowman, a citizen of the United States of America, residing at 6202 Clarkwood Circle, City of Greensboro, County of Guilford, State of North Carolina, and Mike Lewis, a citizen of the United States of America, residing at 5582 Anson Road, City of Greensboro, County of Guilford, State of North Carolina, and Kim Paisley, a citizen of the United States of America, residing at 2500 Baytree Drive, City of Greensboro, County of Guilford, State of North Carolina, hereinafter referred to as assignors.

WITNESSETH: That,

WHEREAS, we are the joint inventors of certain new and useful improvements in **PAPERLESS CHAIN OF CUSTODY EVIDENCE FOR LAB SAMPLES** for which we are about to make application for Letters Patent of the United States, and for which we have executed a declaration on the ✓ _____ day of ✓ _____, 2000.

WHEREAS, GBF, Inc., a corporation duly organized and existing under the laws of the State of North Carolina and having a principal place of business in Greensboro, County of Guilford, State of North Carolina, hereinafter referred to as assignee, is desirous of acquiring the entire right, title and interest in and to said invention as described in the specification executed by us concurrently herewith, and any and all Letters Patent which shall be granted therefor;

NOW, THEREFORE, To All Whom It May Concern, be it known that for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, we, the said assignors, have sold, assigned, transferred and set over unto the said assignee, its successors and assigns, the entire right, title and interest in and to the above-mentioned application and

PAPERLESS CHAIN OF CUSTODY EVIDENCE FOR LAB SAMPLES

BACKGROUND OF THE INVENTION

5 The present invention relates to improvements in identification, logistics control, and information management for biomedical specimens collected for diagnostic or toxicology testing. Diagnostic and toxicology specimens are typically collected for analytical testing from donors at collection sites such as hospitals, clinics, or doctors' offices. These specimens are collected in primary specimen containers specifically designed to completely and safely
10 contain the specimens during handling and shipment in order to preserve the integrity of the specimens and to protect the health of persons who come in contact with the containers. In addition, primary toxicological specimen containers are typically provided with tamperproof locks or seals to ensure that the integrities of the toxicological specimens are not breached by unauthorized persons or by mishandling of the containers.

15 Diagnostic and toxicology testing requires the collection, recording, and maintenance of essential information about each diagnostic or toxicology specimen. Such information includes the identity and nature of each specimen, the identity of the specimen donor, the test or tests to be performed on the specimen, the identity of the person collecting the sample, the time and place of collection, and the results of tests performed on the specimen. Also,
20 toxicology specimens typically require written authorizations signed by their donors.

Because most specimen collection sites do not have testing laboratories on site, the specimens are typically sent to remote reference laboratories. Accordingly, the pertinent information about a particular specimen must be accurately communicated to the laboratory which tests the specimen, and the laboratory must in turn accurately report the test results for that
25 specimen back to the site where the specimen was originally collected or to another remote site.

The recording, maintenance, and communication of specimen and testing information is currently done using preprinted duplicate-page forms having spaces for manually entering designated information onto the forms. Duplicate copies of the completed forms are used for communicating and recording information among and between multiple departments or sites involved with the handling or testing of a specimen. It is common for such forms to have sequential numbers and bar codes that correspond to matching bar coded labels which can be affixed to the specimen containers corresponding to the written information on the associated forms. These bar codes can be scanned to identify the specimens contained in the bar-coded containers, and the bar codes on the forms can be scanned to correlate the recorded information with the specimen. In addition, written or typed information is often included on labels on the specimen containers to show details about the contained specimens. The primary specimen containers and copies of the associated forms are typically maintained together by placing them together in secondary containers such as boxes or sleeves. These secondary containers are then transported to a reference laboratory to conduct the required tests on the specimens.

Particularly for toxicology specimens such as urine specimens to be tested for illicit drugs, legal evidence linking the specimen to be tested to the donor is critical. Prior efforts to assure this linkage include chain of custody bags and forms taught in U.S. Patents 5,135,313 to Bowman and 4,873,193 to Jensen et al., and British Patent Application 2,221,208.

Because the specimens originate from multiple remote collection sites, the collection and delivery of such specimens requires coordination between the collection sites, the laboratory, and a courier. Because many collection sites have only a sporadic need for diagnostic or toxicology testing, it is often inefficient for a designated courier to visit a potential collection site daily or semi-daily to possibly collect specimens for delivery. In order to avoid such inefficiency, collection sites must typically notify either the laboratory or

a courier each time specimens are awaiting collection for delivery to the laboratory, causing a different type of inefficiency.

Modern reference laboratories typically include automated handling and testing equipment. Such laboratories have automated sorters and conveyors for routing specimens to testing stations and testing equipment that automatically performs the required tests on the specimens with minimal manual human intervention. However, even such automated laboratories must receive and inventory specimens from remote specimen collection sites by manually unpacking each specimen and the associated forms from their boxes or sleeves. The laboratories typically use manual bar code scanners to individually scan the bar code labels on the received specimen containers and forms and then manually input data into computers that control the automated handling and testing equipment. The specimens are manually staged for introduction into the automated systems. Once testing has been performed on a specimen, a laboratory typically records the test results manually on the associated forms and then reports the test results by sending the completed forms to the originating specimen collection site or other selected destination.

As can be appreciated by those skilled in the art, the current methods for information management and logistical control for biological specimens collected for diagnostic or toxicology testing include a number of difficulties. The use of written forms and written labels to record, maintain, and communicate specimen information is especially problematic. Manual entry of information onto forms or labels at collection sites and laboratories is labor intensive and causes delays in processing the specimens and information. Also, written forms or labels may be illegible or may become obliterated by handling or spills, causing a loss or miscommunication of essential information. Furthermore, it is necessary to physically maintain copies of the forms with the associated specimens. These forms add bulk to transport packaging for the specimen containers, and may be lost or dissociated from the

specimens. In addition, the forms must be individually handled and scanned or read when received by a reference laboratory, adding labor cost and causing delays leading to underutilization of the automated laboratory handling and test equipment. Lost or dissociated forms may cause potentially harmful delays in the testing or reporting of diagnostic test results for distressed donors experiencing medical emergencies. In addition, if a form containing an authorization signature of a toxicology specimen donor is lost or misplaced, the test cannot be performed until the donor again authorizes the test.

While the use of bar codes has proved useful for the identification, control, and correlation of specimens and specimen forms, it has not eliminated the need for written forms to record and manage specimen information nor the associated problems. In addition, the bar codes on specimens and forms must be individually scanned and convey only limited basic identity information about the specimens.

Also, because independent specimen collection sites may generate specimens only sporadically, the process of collecting specimens from these sites is problematic. Having couriers regularly visit sites having no specimens for collection wastes labor and transportation costs. Alternatively, having the sites request collection on a case-by-case basis is labor intensive and subject to communication delays or miscommunication.

Accordingly, there is a need in the art for an improved system for managing information for biomedical specimens collected for diagnostic or toxicology testing and for coordinating the relay of specimens between remote collection sites and reference laboratories.

The present invention uses electronic memory tags on diagnostic or toxicology specimen containers to meet this need. Radio Frequency Identification (RFID) systems featuring so-called "smart tags" or "smart labels" and the associated electronic devices for remotely writing information to and reading information from these smart tags or labels are

known. Similar electronic tags were developed by the United States National Laboratory at Los Alamos, NM for the Department of Agriculture to identify and track livestock animals. One supplier, Texas Instruments, Inc., markets such RFID products and systems under the trademark TAG-IT®. As this technology has developed, RFID systems have been used to address a number of needs. For example, U.S. Patent No. 4,912,471 to Tyburski, et al. and U.S. Patent No. 5,351,052 to D'Hont, et al. disclose the use of RFID systems for the identification of and communication between moving vehicles such as automobiles or railroad cars. Also, U.S. Patent Nos. 5,030,807 issued to Landt, et al., 5,971,437, issued to Sakashita, and 6,019,394, issued to Chenoweth disclose the use of RFID systems for identification and control of various moveable objects. However, RFID devices and systems have not been used in connection with diagnostic or toxicological specimen containers for identification and control of biomedical specimens and to improve the management of the information associated with such specimens.

SUMMARY OF THE INVENTION

The present invention fulfills this need in the art by providing a diagnostic specimen container including a collection vessel and a wireless electronic memory tag for non-contact storage and retrieval of information. Preferably, the electronic memory tag includes a radio frequency transponder. The diagnostic specimen container preferably includes data stored on the electronic memory tag including an identification code for the container. Other pertinent information may also be stored on the electronic memory tag, such as the identity of the supplier of the container and product information about the container, identifying information about a specimen contained in the vessel and about the specimen donor, definition of the analytical tests to be performed on the specimen in the vessel, or any other relevant data. Desirably, the diagnostic specimen container also includes a label imprinted with an identifying bar code.

The invention also provides a toxicology specimen container including a collection vessel and a wireless electronic memory tag for non-contact storage and retrieval of information.

5 In one embodiment, the tag contains only a readable identification code so that the container (whether for diagnostic or toxicological specimens) may be simply identified as unique. A computer record may correlate the identification code with the other pertinent information about the specimen.

10 The invention also provides a method for electronically storing information on a diagnostic or toxicology specimen container and remotely reading information from the container. This method includes providing a specimen container having a wireless electronic memory tag, electronically storing data on the electronic memory tag, and reading the stored information from the electronic memory tag with a non-contact electronic reader or scanner. This method provides for the storage and retrieval of a large amount of data directly onto and from the container without physical contact.

15 The invention further provides a method for recording information about a diagnostic or toxicology specimen on a diagnostic or toxicology specimen container including providing a specimen container having a wireless electronic memory tag, collecting a specimen from a donor in the specimen container, and electronically storing information about the specimen, donor, and/or tests to be performed on the specimen on the electronic memory tag.

20 Preferably, this method includes collecting and storing the electronic signature of the specimen donor on the electronic memory tag. This method may also include storing the results of the analytical tests performed on the specimen in the container on the electronic memory tag.

25 The invention also provides a method for managing the gathering of diagnostic and/or toxicology specimens from multiple specimen collection sites and the delivery of the

collected specimens to a reference laboratory. The method includes collecting identity and test data for specimens and specimen donors at multiple collection sites, entering the collected data into collection site computer databases, and transmitting the collected data from the collection site computer databases to a computer at a reference laboratory by an

5 internet connection. Then, the method proceeds by compiling and processing the transmitted data with the laboratory computer to generate a schedule and route for gathering the specimens from the specimen collection sites, gathering the specimens from the specimen collection sites according to the schedule and route, and delivering the specimens to the reference laboratory. Preferably, the data collection includes reading information from
10 electronic memory tags attached to containers containing the specimens by scanning the electronic memory tags with an electronic reader/scanner. Desirably, the data collection also includes scanning bar codes imprinted on labels on the specimen containers. The data collection and entry also preferably includes collecting data into an electronic recording device and uploading the recorded information from the electronic recording device into a
15 local computer at each specimen collection site for storage and transmission. Data collection and entry with the electronic recording device may also include collecting the electronic signatures of specimen donors and entering the electronic signatures of the specimen donors into the local computer database.

The invention also provides a method for controlling the receipt, routing, and testing
20 of diagnostic or toxicology specimens at an automated reference laboratory. This method includes delivering diagnostic and/or toxicology specimens to the automated reference laboratory which are contained in specimen containers having specimen and testing information stored on radio frequency memory tags affixed to the specimen containers. The method includes scanning and reading the specimen and testing information from the
25 electronic memory tags on the specimen containers with electronic scanners or readers,

transmitting the information to a microprocessor for controlling the automated laboratory equipment, processing the read information with the microprocessor, and using the processed information to control the sorting, routing, and analytical testing of the specimens by the automated laboratory equipment. The method may also include electronically writing the results of the analytical test or tests for each analyzed specimen to the electronic memory tag on the specimen container containing the corresponding analyzed specimen. This method may also include electronically storing the results of the analytical test or tests and the corresponding specimen identification data on a laboratory computer database. Preferably, the analytical test results data and corresponding specimen identification data stored on the laboratory computer database are transmitted to the corresponding original specimen collection site by an internet connection. Alternatively or in addition, the analytical test results and corresponding specimen identification data stored on the laboratory computer database may be printed to a written test results report.

The invention also provides an integrated method for managing the collection, control, and testing of diagnostic and/or toxicology specimens and for managing the specimen and testing information associated with such specimens. First, encoded specimen containers having electronic memory tags with electronic specimen identification codes stored therein and having bar code labels imprinted with identifying bar codes are provided. Next, the electronic specimen identification code and identifying bar code for each encoded specimen container are correlated and the correlated codes are stored on a central computer database. The encoded specimen containers are then supplied to multiple specimen collection sites and are used to collect specimens from specimen donors at these sites. After gathering data about the collected specimens, specimen donors, and prescribed specimen tests at the specimen collection sites, the data is correlated with the identifying bar codes on the corresponding specimen containers and entered into the collection site computer record.

Next, the gathered and stored specimen, donor, and testing data and correlated identity codes are transmitted from the collection site computer to a laboratory computer at an automated reference laboratory, such as by an internet connection.

The received data is then processed at the reference laboratory, and a queue is defined for specimens awaiting collection for delivery to the automated reference laboratory. This queue is used to define a route for collecting the specimens from the specimen collection sites for delivery to the automated reference laboratory. The specimens are then gathered from the specimen collection sites according to the route, and the collected specimens are delivered to the automated reference laboratory. At the reference laboratory, the electronic memory tags on the delivered specimen containers are electronically interrogated to detect the associated electronic identity codes, and the read data is correlated with the specimen data previously transmitted to the laboratory computer database. The specimens are then automatically sorted for testing, and testing schedules are established using the correlated specimen and testing data in the laboratory computer database. Next, the specimens are automatically routed through the automated reference laboratory using the correlated specimen and testing data in the laboratory computer database. The test results are then electronically recorded on the laboratory computer database and the results are correlated with the previously recorded specimen data. Finally, the recorded and correlated test results data is transmitted to remote locations for reporting.

Preferably, data is gathered at the specimen collection sites by scanning the bar codes on the specimen containers with an electronic recording device having a bar code scanner and then entered into the central computer database by electronically uploading the bar code data and other recorded specimen data from the electronic recording device. This method also preferably includes recording and uploading the electronic signatures of the specimen donors using the electronic recording device. Desirably, the routing and testing step at the automated

reference laboratory also includes verifying the identity and required testing of each specimen prior to testing by interrogating the electronic memory tag on each specimen container for its electronic identity code and comparing the read code with the correlated specimen and prescribed testing requirements in the laboratory computer database. In addition, it may be preferable to transmit the test results data from the laboratory computer database to the associated specimen collection sites by an internet connection. Alternatively, written test result reports may be printed and delivered to remote sites.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be better understood from a reading of the detailed description of the preferred embodiments along with a review of the drawings in which:

FIG. 1 is a front exterior view of a preferred embodiment;

FIG. 2 is a front detail view of the label of the embodiment of FIG. 1;

FIG. 3 is a rear view of the label of FIG.2;

FIG. 4 is a block diagram of an integrated system for managing the collection, control, and testing of diagnostic and/or toxicology specimens and for managing the specimen and testing information associated with such specimens using the apparatus shown in Figures 1-3; and

FIG. 5 is a flow chart showing the flow of information and data about specimen containers, specimens, and specimen tests between the container supplier, the specimen collection site, and the automated laboratory according to the method shown in FIG. 4.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention provides a diagnostic or toxicology specimen container having a wireless electronic memory tag for non-contact storage and retrieval of information. As seen in FIG. 1, a vessel 1 is provided with a cap 2 for sealingly receiving a biomedical

specimen within the vessel 1. An electronic memory tag 3 is affixed to an exterior surface of the vessel 1. An enlarged front view of a preferred embodiment of the electronic memory tag 3 is shown in FIG. 2. The electronic memory tag 3 includes a carrier label 4 which has a front face 5 and a rear face 6. Preferably, the front face 5 is imprinted with an identification bar code 7. A text area 8 is also provided for printing, typing, or writing pertinent information on the front face 5 of the carrier label 4. A detail view of the rear face 6 of the carrier label 4 is shown in FIG.3. An electronic memory device 9 is attached to the rear face 6. Alternatively, the invention may include a separate electronic memory tag 3 and a second printed label having a bar code 7 imprinted thereon (not shown). The apparatus of Figures 1-3 may be used for either a diagnostic or toxicology specimen. For toxicology specimens, the specimen containers may further include a tamper-resistant or tamper-evident locking or sealing device (not shown).

In the preferred embodiment, the electronic memory device 9 is an ultra-thin radio frequency transponder made up of an integrated circuit and an antenna. The transponder has no battery, but is energized when interrogated by radio signals from a reader or scanner. The radio frequency transponder may be configured as a read/write, write-once/read-many, or read-only device as required in a particular embodiment of the invention. Details regarding these transponders and the electronic devices to write information to and read information from such devices are known and need not be shown in the detailed drawings to enable those of ordinary skill in the art to practice the invention. Alternatively, other types of compact, non-contact electronic memory devices may also be used.

A unique electronic identification code for the specimen container is stored on the electronic memory device 9, though the electronic memory device 9 may be selected to be capable of storing any desired information within the memory capacity of the device. For example, Tag-It® brand radio frequency identification systems sold by Texas Instruments,

Inc., of Dallas Texas may be used. Other types of information which may also be stored include identifying and contact information of the supplier of the specimen container, product information about the container, the identity of the collection site using the specimen container, the date and time the specimen container is used to collect a specimen, identifying
5 information about a specimen contained in the container and its donor, and definition of the tests to be performed on the contained specimen. This information may be written to the electronic memory device or read from the device by the specimen container supplier, the specimen collection sites using the containers, or a testing laboratory. In a preferred embodiment, the tag is a read-only tag having only a unique identification code so that the
10 container to which it is affixed can be uniquely identified. That unique identification code may then be correlated with more complete data found on a computer. This simplifies and reduces the cost of the tag.

The present invention also provides an integrated system for managing the collection, control, and testing of diagnostic and/or toxicology specimens and for managing the
15 specimen and testing information associated with such specimens. FIG. 4 shows the sequence of events in the preferred method, and FIG. 5 shows the flow of information and data associated with this method. The process begins by first providing 10 specimen containers having electronic memory tags 3 as shown in Figures 1-3. Preferably, each container has a unique electronic identification code stored on its electronic memory tag 3
20 and a bar code 7 imprinted on the front face 5 of its carrier label 4. Each electronic identification code and corresponding bar code 7 are correlated 11 and stored 12 on a central computer database 29. The central computer database 29 provides a cross-reference for future identification and control of the specimen containers using either the bar codes 7 or electronic control codes. The specimen containers are then supplied 13 to multiple specimen

collection sites such as hospitals, clinics, and doctors' offices. The bar code is not necessary in all embodiments of the invention.

The provided specimen containers are used to collect 14 biomedical specimens from donors for testing. The specimens may be either diagnostic or toxicology specimens or used in clinical trials. Attendants at the specimen collection site also gather information 14 about each collected specimen, the specimen donor, and the required specimen testing. In this preferred embodiment, the data is collected using an electronic recording device including a bar code scanner for scanning and recording the bar code 7 from each specimen container. Such electronic recording devices are widely known, such as those used in connection with commercial parcel delivery services. One such device 101 is described in U.S. Patent No. 6,094,642 to Stephenson et al., assigned to Federal Express Corporation. Another such device is disclosed in U.S. Patent 5,313,051 to Brigida, et al., assigned to International Business Machines Corp. The specifications of these two patents are hereby incorporated by reference. The attendant's electronic recording device may include a keypad to permit input of information into the system as well as means for uploading data from the electronic recording device to a computer. The electronic identification code stored on the electronic memory tag may be used to identify the specimen container and the specimen contained therein, but the bar code 7 is a preferred method of identification at the specimen collection sites because of the low relative cost of bar code scanners compared to the readers/scanners required to interrogate the electronic memory tags to detect the electronic identification codes. However, the collection sites may alternatively use the electronic memory codes in lieu of the bar codes 7 when an electronic reader/scanner is available. In addition, collection sites having the capability may electronically write the gathered specimen information to the electronic memory tag on the specimen container holding the associated specimen. For toxicology specimens, the gathered data includes the electronic authorization and

identification signatures of the specimen donors. Preferably, the data input software prevents unauthorized tampering with the input data once the signature has been received to enable a reliable chain of custody record to be established.

Next, the gathered identification and specimen data is entered 15 into the central computer database 29 by uploading the data from the electronic recording device or by manual entry. The uploaded data is then correlated 16 with the previously stored specimen container identification data in the central computer database 29.

The correlated data 30 is then transmitted 17 to a laboratory computer database 33 such as by an internet connection. Other connections such as LAN, WAN, dial-up modems or the like can be substituted and, as used herein for internet connections should be construed to include such connections. This data 30 may be used by the laboratory to define 18 a queue of specimens awaiting collection and delivery to the laboratory from the multiple collection sites. The laboratory or other actor then defines 18 a route and schedule 34 for the efficient and timely gathering of specimens from the multiple collection sites and delivery to the laboratory . The specimens are then gathered 19 according to the route and schedule 34 by one or more couriers and delivered 20 to the laboratory.

The delivered specimens are interrogated 21 at the laboratory using an electronic reader/scanner to detect the electronic identification codes stored on the electronic memory tags 3. The specimen containers can be remotely scanned in mass at a receiving station with an electronic reader or scanner, even while still inside their protective shipping cartons or containers, thereby reducing the elapsed time and labor cost associated with identifying and receiving each specimen individually. The data 31 detected from the specimens is input into the laboratory computer database 33 and correlated 22 with the other corresponding specimen data in the laboratory computer database 33. The correlated data is used 23 by a

microprocessor controlling the automated laboratory equipment to sort the specimens and schedule the prescribed diagnostic or toxicology tests for each specimen.

For some types of tests, particularly toxicology tests, human inspection of the specimen container is desirable at the laboratory, and the present invention aids this process.

5 As a series of containers pass the inspector, he or she may inspect and input by a simple keystroke or other motion his or her indication that the container is intact and of acceptable quality for the prescribed test. The inspector making such judgment may automatically identify a specimen by scanning its bar code 7 or electronically reading its tag 3.

The sorted and scheduled specimens are then routed through conventional automated
10 handling and testing equipment and tested 24. Test results 32 are electronically recorded 25 and entered into the laboratory database 33. The test results are correlated 25 with the previously stored specimen data 31 and electronic test results reports 35 are transmitted 26 to remote locations via internet connections. Alternatively, written test results reports 36 may be generated and sent to the remote locations.

15 While this invention has been described with reference to illustrative embodiments, this description is not intended to be construed in a limiting sense. Various modifications and combinations of the illustrative embodiments, as well as other embodiments of the invention, will be apparent to persons skilled in the art upon reference to the description. It is therefore intended that the appended claims encompass any such modifications or embodiments.

20

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What is claimed is:

1. A diagnostic specimen container comprising a biomedical specimen collection vessel and a wireless electronic memory tag for non-contact storage and retrieval of information.

5

2. A diagnostic specimen container as claimed in claim 1 wherein the electronic memory tag includes a radio frequency transponder.

3. A diagnostic specimen container as claimed in claim 1 wherein the electronic
10 memory tag contains stored data including an identification code for the container.

4. A diagnostic specimen container as claimed in claim 3 further including a label imprinted with an identifying bar code.

15 5. A diagnostic specimen container as claimed in claim 1 wherein the electronic memory tag contains stored data including the identity of the supplier of the container and product information about the container.

6. A diagnostic specimen container as claimed in claim 1 wherein the electronic
20 memory tag contains stored data including identifying information about a specimen contained in the vessel and about the specimen donor.

7. A diagnostic specimen container as claimed in claim 6 wherein the electronic
memory tag contains stored data further including definition of the analytical tests to be
25 performed on the specimen in the vessel.

8. A diagnostic specimen container comprising:

a collection vessel and a wireless electronic memory tag including a radio frequency transponder for non-contact storage and retrieval of information;

data stored on the electronic memory tag including an identification code for the container, the identity of the supplier of the container and product information about the container, identifying information about a specimen contained in the vessel and about the specimen donor, and definition of the analytical tests to be performed on the specimen in the vessel; and

a label imprinted with an identifying bar code.

10

9. A toxicology specimen container comprising a collection vessel configured to receive and contain a toxicology specimen and a wireless electronic memory tag for non-contact storage and retrieval of information.

15

10. A toxicology specimen container as claimed in claim 9 wherein the electronic memory tag includes a radio frequency transponder.

11. A toxicology specimen container as claimed in claim 9 wherein the electronic memory tag contains stored data including an identification code for the container.

20

12. A toxicology specimen container as claimed in claim 11 further including a label imprinted with an identifying bar code.

13. A toxicology specimen container as claimed in claim 9 wherein the electronic memory tag contains stored data including the identity of the supplier of the container and product information about the container.

5 14. A toxicology specimen container as claimed in claim 9 wherein the electronic memory tag contains stored data including identifying information about a specimen contained in the vessel and about the specimen donor.

10 15. A toxicology specimen container as claimed in claim 14 wherein the electronic memory tag contains stored data further including definition of the analytical tests to be performed on the specimen in the vessel.

15 16. A toxicology specimen container as claimed in claim 9 wherein the electronic memory tag contains stored data including an encoded electronic signature of the donor of a toxicology specimen.

17. A toxicology specimen container comprising:

 a biomedical specimen collection vessel and a wireless electronic memory tag including a radio frequency transponder for non-contact storage and retrieval of information;

20 data stored on the electronic memory tag including an identification code for the container, the identity of the supplier of the container and product information about the container, identifying information about a specimen contained in the vessel and about the specimen donor, definition of the analytical tests to be performed on the specimen in the vessel, and an encoded electronic signature of the donor of the toxicology specimen in the

25 vessel; and

a label imprinted with an identifying bar code.

18. A method for electronically storing information on a diagnostic or toxicology specimen container and remotely reading information from the container comprising:

5 providing a biomedical specimen container having a wireless electronic memory tag;
electronically storing data on the electronic memory tag; and
reading the stored information from the electronic memory tag with a non-contact electronic reader or scanner.

10 19. A method for recording information about a diagnostic or toxicology specimen on a diagnostic or toxicology specimen container comprising:

providing a biomedical specimen container having a wireless electronic memory tag;
collecting a specimen from a donor in the specimen container; and
electronically storing information about the specimen, donor, and/or tests to be
15 performed on the specimen on the electronic memory tag.

20 20. A method as claimed in claim 19 further including collecting and storing the electronic signature of the specimen donor on the electronic memory tag.

20 21. A method as claimed in claim 19 further including storing the results of the analytical tests performed on the specimen in the container on the electronic memory tag.

22. A method for managing the gathering of diagnostic and/or toxicology specimens from multiple specimen collection sites and the delivery of the collected specimens to a
25 reference laboratory comprising:

collecting identity and test data for specimens and specimen donors at multiple collection sites;

entering the collected data into collection site computer databases;

transmitting the collected data from the collection site computer databases to a

5 computer at a reference laboratory by internet connections;

compiling and processing the transmitted data with the laboratory computer to generate a schedule and route for gathering the specimens from the specimen collection sites; and

gathering the specimens from the specimen collection sites according to the schedule and route and delivering the specimens to the reference laboratory.

10

23. A method as claimed in claim 22 wherein data collection includes reading information from electronic memory tags attached to containers containing the specimens by scanning the electronic memory tags with an electronic reader/scanner.

15

24. A method as claimed in claim 22 wherein data collection includes scanning bar codes imprinted on labels on the specimen containers.

25. A method as claimed in claim 22 wherein data collection includes entering data into a portable electronic recording device and data entry includes uploading the recorded information from the electronic recording device into a local computer at each specimen collection site.

20

26. A method as claimed in claim 22 wherein data collection includes collecting the electronic signatures of specimen donors and data entry includes entering the electronic signatures of the specimen donors into the local computer database.

5 27. A method for controlling the receipt, routing, and testing of diagnostic or toxicology specimens at an automated reference laboratory comprising:

 delivering diagnostic and/or toxicology specimens to the automated reference laboratory which are contained in specimen containers having specimen and testing information stored on radio frequency memory tags affixed to the specimen containers;

10 scanning and reading the specimen and testing information from the electronic memory tags on the specimen containers with electronic scanners or readers and transmitting the information to a microprocessor for controlling the automated laboratory equipment; and

 processing the read information with the microprocessor and using the processed information to control the sorting, routing, and analytical testing of the specimens by the
15 automated laboratory equipment.

28. A method as claimed in claim 27 further including electronically writing the results of the analytical test or tests for each analyzed specimen to the electronic memory tag on the specimen container containing the corresponding analyzed specimen.

20 29. A method as claimed in claim 27 further including electronically storing the results of the analytical test or tests and the corresponding specimen identification data on a laboratory computer database.

30. A method as claimed in claim 29 further including printing the analytical test results and corresponding specimen identification data stored on the laboratory computer database to a written test results report.

5 31. A method as claimed in claim 29 further including transmitting the analytical test results data and corresponding specimen identification data stored on the laboratory computer database to the corresponding original specimen collection site by an internet connection.

32. A method for managing the collection, control, and testing of diagnostic and/or
10 toxicology specimens and for managing the specimen and testing information associated with such specimens comprising:

providing encoded specimen containers having electronic memory tags with
electronic specimen identification codes stored therein and having bar code labels imprinted
with identifying bar codes;

15 correlating the electronic specimen identification code and identifying bar code for each encoded specimen container and storing the correlated codes on a central computer database;

supplying the encoded specimen containers to multiple specimen collection sites;

collecting specimens from specimen donors and placing the specimens in the encoded
20 specimen containers at the specimen collection sites;

gathering data about the collected specimens, specimen donors, and prescribed
specimen tests at the specimen collection sites, correlating the gathered data with the
identifying bar codes on the corresponding specimen containers, and entering the gathered
and correlated data into the central computer database;

transmitting the gathered and stored specimen, donor, and testing data and correlated identity codes from the central computer database to a laboratory computer database at an automated reference laboratory by an internet connection;

processing the received data at the reference laboratory and defining a queue of

5 specimens awaiting collection for delivery to the automated reference laboratory;

using the queue to define a schedule and route for collecting the specimens from the specimen collection sites for delivery to the automated reference laboratory;

gathering the specimens from the specimen collection sites according to the schedule and route and delivering the collected specimens to the automated reference laboratory;

10 electronically interrogating the electronic memory tags on the delivered specimen containers to detect the associated electronic identity codes and correlating the read data with the specimen data previously transmitted to the laboratory computer database;

automatically sorting the specimens for testing and establishing testing schedules using the correlated specimen and testing data in the laboratory computer database;

15 automatically routing and testing the specimens through the automated reference laboratory using the correlated specimen and testing data in the laboratory computer database;

electronically recording the test results on the laboratory computer database and correlating the results with the previously recorded specimen data; and

20 transmitting the recorded and correlated test result data to remote locations.

33. A method as claimed in claim 32 wherein the data gathering at the specimen collection sites includes scanning the bar codes on the specimen containers with an electronic recording device having a bar code scanner and data entry at the specimen collection sites

includes electronically uploading the bar code data and other recorded specimen data from the electronic recording device to the central computer database.

34. A method as claimed in claim 33 further including recording and uploading
5 electronic signatures of the specimen donors using the electronic recording device.

35. A method as claimed in claim 32 wherein the routing and testing step at the automated reference laboratory includes the step of verifying the identity and required testing of each specimen prior to testing by interrogating the electronic memory tag on each
10 specimen container for its electronic identity code and comparing the read code with the correlated specimen and prescribed testing requirements in the laboratory computer database.

36. A method as claimed in claim 32 wherein the transmission includes transmitting the test results data from the laboratory computer database to the associated specimen
15 collection sites by an internet connection.

37. A method as claimed in claim 32 further including printing written test result reports and delivering the written test result reports to remote sites.

ABSTRACT

A paperless system for identifying and controlling biomedical specimens and managing essential information associated with such specimens. The invention provides a diagnostic or toxicology specimen container having an electronic memory tag for remote
5 non-contact recording and reading of data stored therein. The invention also provides improved methods for controlling the identity of such specimens, coordinating the relay of such specimens between remote specimen collection sites and reference laboratories, and managing essential information associated with such specimens by using the electronic memory tags.

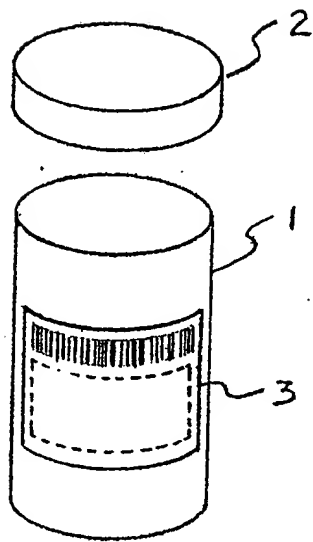


FIG. 1

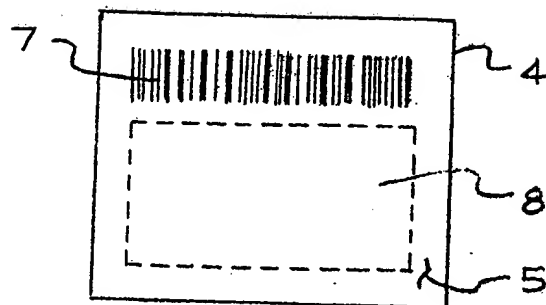


FIG. 2

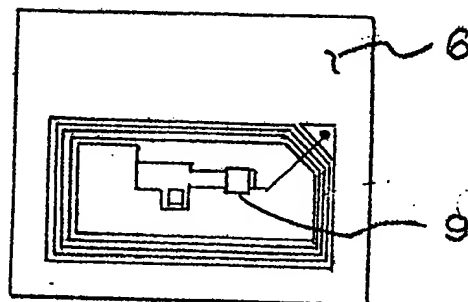
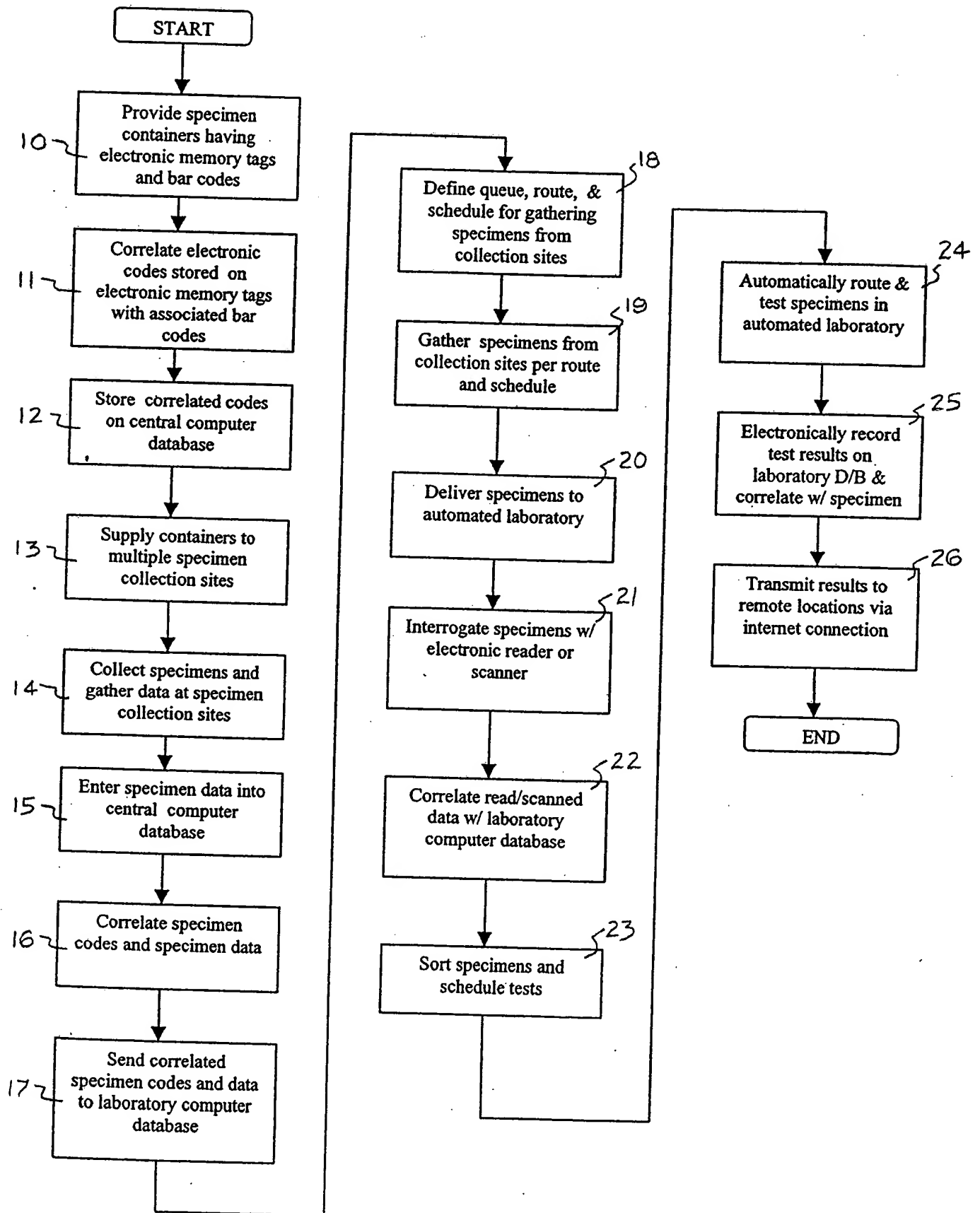


FIG. 3

FIG. 4



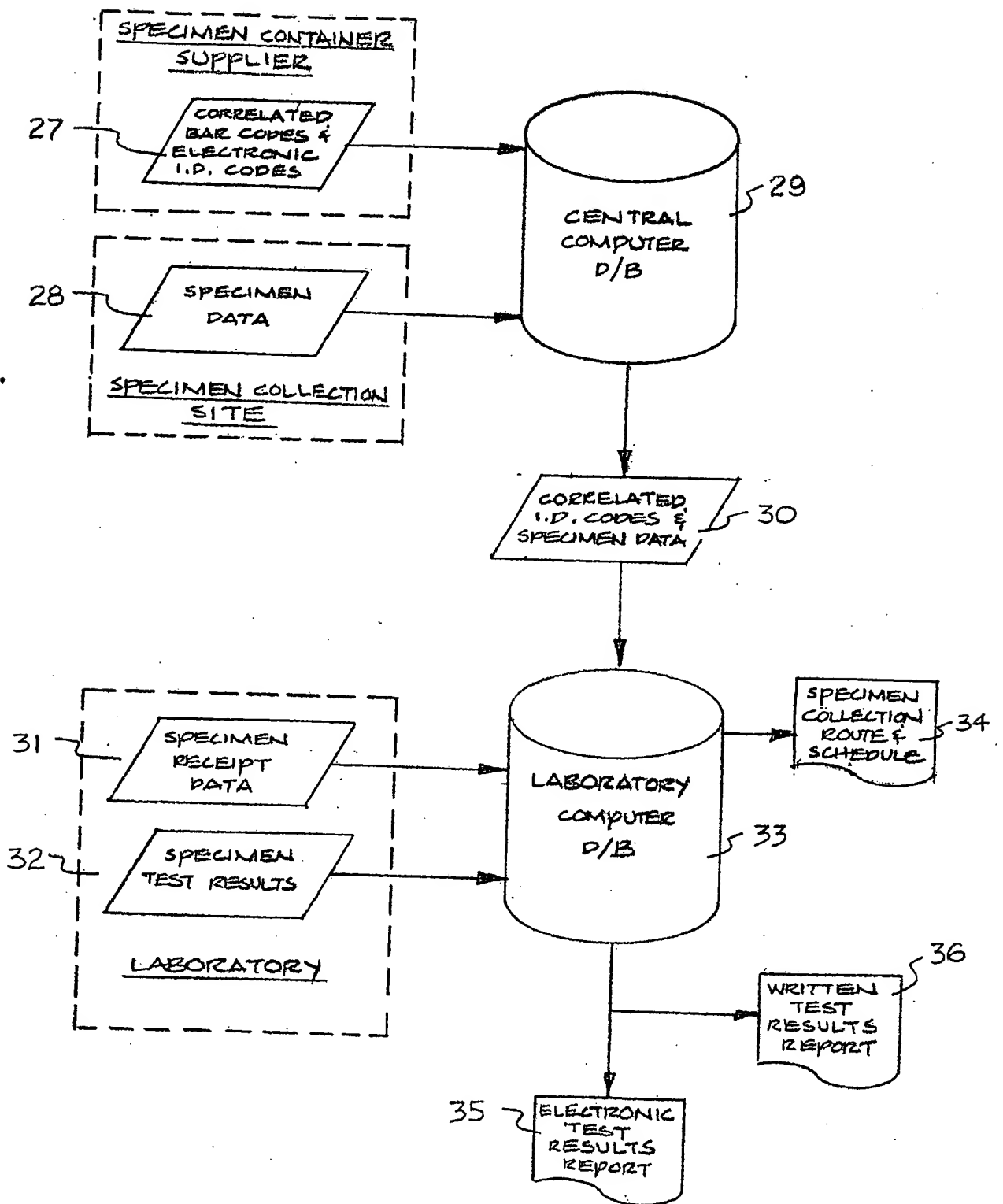


FIG. 5

RULE 63 (37 C.F.R. 1.63)
DECLARATION FOR PATENT APPLICATION
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name, and I believe I am the original, first and sole inventor (if only one name listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled **PAPERLESS CHAIN OF CUSTODY EVIDENCE FOR LAB SAMPLES** the specification of which (check applicable box(es)):

- ☒ is attached hereto.
☐ was filed on _____ as U.S. Application Serial No. _____
☐ was filed as PCT international application No. PCT/_____/_____ on _____ and (if applicable to U.S. or PCT application) was amended on _____

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to the examination of this application in accordance with 37 C.F.R. 1.56(a). I hereby claim foreign priority benefits under 35 U.S.C. 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed or, if no priority is claimed, before the filing date of this application:

Prior Foreign Application(s):		
Application Number	Country	Day/Month/Year Filed

I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application listed below:

Prior Provisional Application(s):	
Application Serial No.	Day/Month/Year Filed

I hereby claim the benefit under 35 U.S.C. 120/365 of all prior United States and PCT international applications listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in such prior application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose material information as defined in 37 C.F.R. 1.56(a) which occurred between the filing date of the prior applications and the national or PCT international filing date of this application:

Prior U.S./PCT Application(s):		Status: patented, pending, abandoned
Application Serial No.	Date/Month/Year Filed	

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the making of such false statements are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

1) Inventor's Signature	<input checked="" type="checkbox"/>	Date	<input checked="" type="checkbox"/>
Inventor's Name (typed)	Danny Bowman		USA
	First Middle Initial Family Name		Citizenship
Residence (City)	Greensboro	State/Foreign Country)	NC
Post Office Address	3901 Gaston Road	Zip Code	27407

2) Inventor's Signature	<input checked="" type="checkbox"/>	Date	<input checked="" type="checkbox"/>
Inventor's Name (typed)	Jason Bowman		USA
	First Middle Initial Family Name		Citizenship
Residence (City)	Greensboro	State/Foreign Country)	NC
Post Office Address	6202 Clarkwood Circle	Zip Code	27410

3) Inventor's Signature	<input checked="" type="checkbox"/>	Date	<input checked="" type="checkbox"/>
Inventor's Name (typed)	Mike Lewis		USA
	First Middle Initial Family Name		Citizenship
Residence (City)	Greensboro	State/Foreign Country)	NC
Post Office Address	5582 Anson Road	Zip Code	27407

FOR ADDITIONAL INVENTORS, check box ☒ and attach sheet with same information and signature and date for each.
Rhodes & Mason (4/98)

RULE 63 (37 C.F.R. 1.63)
DECLARATION FOR PATENT APPLICATION
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name, and I believe I am the original, first and sole inventor (if only one name listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled **PAPERLESS CHAIN OF CUSTODY EVIDENCE FOR LAB SAMPLES** the specification of which (check applicable box(es)):

☒ is attached hereto.
☐ was filed on _____ as U.S. Application Serial No. _____
☐ was filed as PCT international application No. PCT/ _____ / _____ on _____ and (if applicable to U.S. or PCT application) was amended on _____

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to the examination of this application in accordance with 37 C.F.R. 1.56(a). I hereby claim foreign priority benefits under 35 U.S.C. 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed or, if no priority is claimed, before the filing date of this application:

Prior Foreign Application(s):		
Application Number	Country	Day/Month/Year Filed

I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application listed below:

Prior Provisional Application(s):	
Application Serial No.	Day/Month/Year Filed

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Prior U.S./PCT Application(s):		
Application Serial No.	Date/Month/Year Filed	Status: patented, pending, abandoned

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

4) Inventor's Signature	x _____	Date	x _____
Inventor's Name (typed)	Kim Paisley		USA
	First Middle Initial Family Name		Citizenship
Residence (City)	Greensboro	State/Foreign Country)	NC
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5) Inventor's Signature	_____	Date	_____
Inventor's Name (typed)	_____		_____
	First Middle Initial Family Name		Citizenship
Residence (City)	_____	State/Foreign Country)	_____
Post Office Address	_____	Zip Code	_____
6) Inventor's Signature	_____	Date	_____
Inventor's Name (typed)	_____		_____
	First Middle Initial Family Name		Citizenship
Residence (City)	_____	State/Foreign Country)	_____
Post Office Address	_____	Zip Code	_____

FOR ADDITIONAL INVENTORS, check box ☒ and attach sheet with same information and signature and date for each.
Rhodes & Mason (4/98)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: **Danny Charles Bowman**

Serial No.: 09/737,185

Examiner: Gakh

Filed: December 14, 2000

Art Unit: 1743

For: **PAPERLESS CHAIN OF CUSTODY EVIDENCE FOR LAB SAMPLES**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

DECLARATION UNDER RULE 1.131

DANNY CHARLES BOWMAN does hereby say as follows:

1. Richard Kimberly Paisley is one of the inventors of the above-identified patent application.
2. Richard Kimberly Paisley assigned the above-identified patent application to GBF, Inc.
3. I am an officer of GBF, Inc.
4. Richard Kimberly Paisley is unavailable to GBF, Inc. to provide a Declaration Under Rule 1.131.
5. I am one of the inventors of the above-identified patent application.
6. I have attached copies of evidence that the above-identified patent application was conceived in the United States or a NAFTA country before November 17, 2000 and applicants were diligent to a constructive redirection to practice from a time prior to November 17, 2000, until December 14, 2000. Dates not specified herein have been redacted but were prior to November 17, 2000:

a. a draft of the application for the PAPERLESS CHAIN OF CUSTODY FOR LAB SAMPLES was developed with the assistance of applicants' lawyers by a date prior to November 17, 2000, and a copy is the attached Exhibit A;

b. a final draft with formal documents for signature was forwarded by counsel on December 5, 2000;

c. The inventors reviewed and approved the application for filing, and the formal documents accompanying the application were signed December 11, 2000, and forwarded to counsel for filing in the PTO on December 14, 2000.

d. from the period beginning at the latest when the "final draft" of the application was developed prior to November 17, 2000 until December 14, 2000, when the application was filed, the inventors of the subject matter of the PAPERLESS CHAIN OF CUSTODY FOR LAB SAMPLES proceeded diligently in all matters regarding the filing of the application.

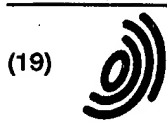
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and such willful false statements may jeopardize the validity of the application or any patent issued thereon.



Danny Charles Bowman

6-15-04

Date



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 1 004 359 A2**

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(54) **Partitioned specimen label for collection containers**

(57) A substrate removably attached to a container that can be linked electronically to the operating stations in a laboratory and/or removed and subsequently attached to a document or another container. More particularly, the substrate is a partitioned label with human readable information and electronically readable information.

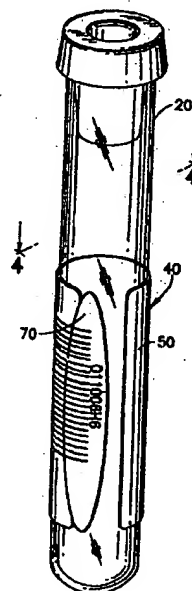


FIG. 1

EP 1 004 359 A2

Description

BACKGROUND OF THE INVENTION

1. Field of Invention

[0001] This invention relates to containers or vessels for collecting fluid samples from patients, that comprise means for containing and sharing information about the contents of the fluid samples in the container and the patient. More particularly, this invention relates to a means that is removably affixed to a vessel or container that can be linked electronically to the operating stations in a laboratory and/or removed mechanically and subsequently attached to another document or container.

2. Description of Related Art

[0002] Test specimens are typically collected by a medical technician, preferably at a medical facility, for testing in a container. Specimens, such as blood, are placed in containers called blood collection tubes and transported or shipped to a test facility together with test request documents.

[0003] It is important that once the specimen is collected in a container, that the donor of the specimen is properly identified. Incorrect identification could result in various misdiagnosis. Any indication that the specimen is not properly identified would require recollection. The test facility matches the blood collection tubes and test request documents received from the medical facility, performs the prescribed tests indicated by the test request document on the specimens and reports the test results to the medical facility.

[0004] Often, a physician may request multiple tests for one patient. Therefore, tests carried out by a test facility involve several thousand items, and the sizes and shapes of the containers that hold the specimens also include several dozen types. Therefore, laboratory facilities can be faced with managing thousands of requests per day. This presents many challenges in assuring that results are accurately transcribed back to the requesting physician and then ultimately to the patient.

[0005] In current laboratory settings, there are several ways that a container containing a specimen can arrive in a laboratory. For example, a container is transported from the collection site with a separate document such as a test request to the testing facility. The personnel at the testing facility receive these separate items and begin processing them together. This can involve entering data from the test request into a computer that electronically links test request information to information about the patient that is already available in the computer system. Additional steps may include obtaining some type of label and attaching it to the container.

[0006] These processing steps are subject to

human error which could result with inaccurate information and tests results. Therefore, a need exists to link patient, test specimen and test request information that is efficient, cost effective, will enhance the accuracy of reporting test results and will eliminate the need for secondary labeling of containers.

[0007] Currently, collection containers are over-labeled with an identifier to control and monitor the specimens prior to and during processing. In most cases, and for those laboratories using integrated, automated systems for specimen processing, the identifier is a barcode.

[0008] There exists a need to improve the efficiency of systems for specimen processing whereby information can be easily found on the collection container.

SUMMARY OF THE INVENTION

[0009] The present invention is a means for providing electronic information onto or into substrates that can be placed onto, uncoded or embedded with a container prior to the container being used as a specimen collection device.

[0010] Preferably, the substrate may contain human readable information from the label or the collection vessel.

[0011] Preferably, the substrate may contain electronic information technology that can be activated, scanned, transferred and stored into other media.

[0012] Most preferably, the substrate includes a means for detaching a portion of the substrate for use with related documents or other related containers.

[0013] The present invention is a collection container comprising a label that comprises a machine readable barcode identification and a portion of the label and barcode can be removed from the container and subsequently affixed to test request forms and the like. The label of the present invention is able to create a direct link between the container, the patient and the test request forms.

[0014] Preferably, the label of the present invention comprises a permanent section and a peel away section. Most preferably, a double bar code is on the label wherein the permanent section and the peel away section of the label share the barcode information and features. In addition to the barcode information on the label, the label may also contain a writing area and/or be color coordinated with other information such as the type of container it is associated with.

[0015] Preferably, the bar code information contains information regarding the tube, the test requirements to be performed and/or patient identification.

[0016] Most preferably, the peel away section comprises a tab that allows the user to quickly and efficiently remove the peel away section from the label and attach it to a document or another container.

[0017] Most preferably, the size of the double bar code is such that it can surround the container with a

wrap angle of up to about 360°. Therefore, misreading of the bar code by electronic devices is substantially minimized because alignment of the electronic device or scanner and label is not required. The bar code angle wrap provides an improved interface with both manual and automatic bar code scanning devices. In the testing laboratory, some automation tube handling systems will transport the tubes on a track to various testing stations in the laboratory environment. The tube, with a bar code label and a small angle wrap, is rotated while scanned to ensure high quality bar code reads at various points along the track. Therefore, the bar code label with a wide angle wrap minimizes the rotation necessary to read the bar code, thereby increasing the production rate of the testing stations in the laboratory.

[0018] Preferably, a bar code wrap angle of 360° will provide a means for the automated equipment to read the bar code with minimal rotation and less time.

[0019] In use, the label is on a container that is subsequently used in a specimen collection procedure. The barcode on the label contains human readable information and/or electronic information that can be activated, scanned, transferred and stored into other media. Once a specimen is collected, the peel away section of the label is removed and applied to a test request form.

[0020] The label of the present invention minimizes the amount of curl-up associated with the inherent material characteristics of pulling and peeling action.

[0021] Most notably, the double barcode label of the present invention allows the customer to create a direct link between the patient form, patient and specimen/tube.

DESCRIPTION OF THE DRAWINGS

[0022]

FIG. 1 is a perspective view of a tube with the label of the present invention.

FIG. 2 is a perspective view of the label of the present invention of FIG. 1.

FIG. 3 is a perspective view of the bottom or underside of the label of the present invention of FIG. 1.

FIG. 4 is a cross-sectional view of the tube with the label of FIG. 1 taken along 4-4 thereof.

FIG. 5 illustrates the user peeling a portion of the label from the tube.

FIG. 6 illustrates the side peel being affixed to a client document.

FIG. 7 is an alternate embodiment of the invention.

FIG. 8 illustrates a flow chart according to the

method of using the label system of the present invention.

DETAILED DESCRIPTION

[0023] While this invention is satisfied by embodiments in many different forms, there is shown in the drawings and will herein be described in detail, the preferred embodiments of the invention, with the understanding that the present disclosure is to be considered as exemplary of the principles of the invention and is not intended to limit the invention to the embodiments illustrated. Various other modifications will be apparent to and readily made by those skilled in the art without departing from the scope and spirit of the invention. The scope of the invention will be measured by the appended claims and their equivalents.

[0024] FIG. 1 illustrates a sample collection tube 20 and a label 40. Label 40 comprises a permanent portion 50 and a peel away portion 70.

[0025] As shown in FIGS. 1, 2 and 3, permanent portion 50 comprises a first side 52, a second side 54, a third side 56, a fourth side 58, a bottom side or an underside 60 and a top side 62. First side 52 is across from second side 54 and third side 56 is across from fourth side 58. Although it is within the purview of the invention that fourth side 58 may be a geometric shape, for purposes of illustration an elliptical shape is shown in FIGS. 2 and 3. In addition, bottom side 60 includes an adhesive 98 for attaching the label to a container.

[0026] As shown in FIGS. 1, 2 and 3, peel away portion 70 includes a first side 72, a second side 74, and a third side 76, a fourth side 78, a bottom side 80 and a top side 82. Peel away portion 70 further includes a dead-ended lift tab 84 comprising a non-stick portion 96 so that the peel away portion may be easily grasped and removal from the container is facilitated. The non-stick portion is located on bottom side 80 near fourth side 78. The remaining area of bottom side 80 includes an adhesive 98 for attaching the label to a container or a document. Although it is within the purview of the invention that peel away portion 70 may be a geometric shape for purposes of illustration an elliptical shape is shown in FIGS. 1, 2 and 3.

[0027] Peel away portion 70 and permanent portion 50 are joined by a perforation 94 at fourth side 58 of the permanent portion and third side 76 of the elliptical portion.

[0028] The label further includes a tandem double barcode 90 located on top side 62 of permanent portion 50 and extending onto top side 82 of the peel away portion 70. The double barcode design is of a size so that it extends approximately 180° or more around the container.

[0029] As shown in FIG. 2, the same or tandem digit and/or alphanumeric combination 89 is located on the peel away section and the permanent section of the label. The first two of the digits are fixed and identify the

tube and product type for features such as but not limited to tube size, tube material and internal additives. These first two digits allow automatic laboratory systems to recognize what type of collection vessel it is handling to facilitate more efficient processing of handling operations. The remaining alphanumeric elements can range in number but are preferred to be five or six digits and are most preferably six digits that are a base thirty-one alphanumeric unique identifier. The advantage of such a ten-digit bar code is that some of the digits can be used to identify the manufacturing location.

[0030] Most preferably, label 40 is applied to a container by an automated manufacturing process so that the label is pre-attached to the container prior to being used by a medical facility and/or prior to being transported to a testing facility.

[0031] Most preferably, perforation 94 is a micro-perforation wherein the user initiates the removal of the peel away portion.

[0032] In use, as shown in FIG. 4, the label is attached to a tube. As shown in FIG. 5 the user grips lift tab 84 of peel away portion 70 and peels and pulls the portion towards the user whereby peel away portion 70 is detached from the permanent portion of the label. The user then affixes the peel away portion to a test request form as shown on FIG. 6 or to another container or item as may be required.

[0033] The lift tab is easily grasped and facilitates removal of the peel away portion from a container. The lift tab is particularly advantageous to users in medical or test facilities who wear protective gloves.

[0034] The peeling and pulling load of the elliptical shape of the peel away portion assists in distributing the load over a large area as compared to a traditional straight line perforation. Distributing the peeling and pulling load across an elliptical shape substantially prevents curl-up of the peel away portion. Curl-up of the peel away portion could prevent the user from using the portion or affixing it to the client order or test request form and it also reduces the necessary force to remove it.

[0035] The elliptical micro-perforation also prevents tear away from the perforation line that occurs when the adhesive forces exceed the label tear strength which in turn renders information on the label non-readable.

[0036] The elliptical lift tab avoids wrinkled corners as may be present on right angled labels and it eases placement of the tube into test tube racks without the label getting caught on the rack.

[0037] Although the peel away portion of the label in accordance with the present invention is an elliptical shape, it is within the purview of this invention that any shape that permits the distribution of the peeling and pulling load so that curl-up or tearing is minimized may be well suited to be used in the present invention.

[0038] Although the container in accordance with the present invention may be a sample collection tube or a culture bottle, other containers may be well suited

to be used with the label of the present invention.

[0039] The alternate embodiment as shown in FIG. 7 includes many components which are substantially identical to the components of FIGS. 2 and 3. Accordingly, similar components performing similar functions will be numbered identically to those components of FIGS. 2 and 3, except that a suffix "a" will be used to identify those similar components in FIG. 7.

[0040] The alternate embodiment of the label of the present invention is illustrated in FIG. 7. As shown in FIG. 7, the label contains a second peel away portion 120.

[0041] As shown in FIG. 8, the system and method for using the label of the present invention is illustrated. As depicted in 150 in the box diagram of FIG. 8, label 40 is applied to a tube. A sample is then drawn from a patient into the tube with the label as depicted in 160 in the box diagram of FIG. 8. As shown in alternative steps 180, 190 and 200, peel away portion 70 of the label may be applied to a test request form, may be left on the tube or applied to a secondary tube. As shown in step 220, tests are then performed on the patient's sample and the label and tube information is electronically read. As shown in step 230, the test results are then reported.

Claims

1. A collection container comprising a label comprising a permanent section, a peel away section, a machine readable double bar code identification wherein the permanent section and the peel away section share said bar code identification.
2. The collection container of Claim 1, wherein said label further comprises a tab on said peel away section whereby said tab allows the user to quickly and efficiently remove said peel away section.
3. The collection container of Claim 1, wherein said peel away section is removed and applied to a test request form.
4. The collection container of Claim 4, wherein said peel away section is an elliptical shape.
5. The collection container of Claim 1, wherein said peel away portion and said permanent portion are removably joined by a perforation.
6. The collection container of Claim 1, wherein said machine's readable double bar code identification is a tandem double barcode.
7. The collection container of Claim 1, wherein said label further comprises the same digit and/or alphanumeric combination on said peel away portion and said permanent portion.

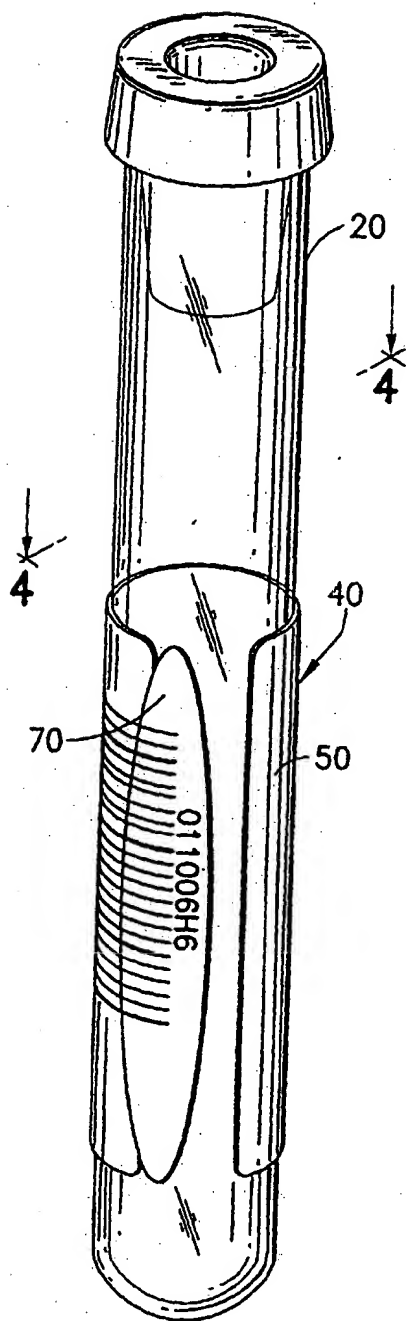


FIG.1

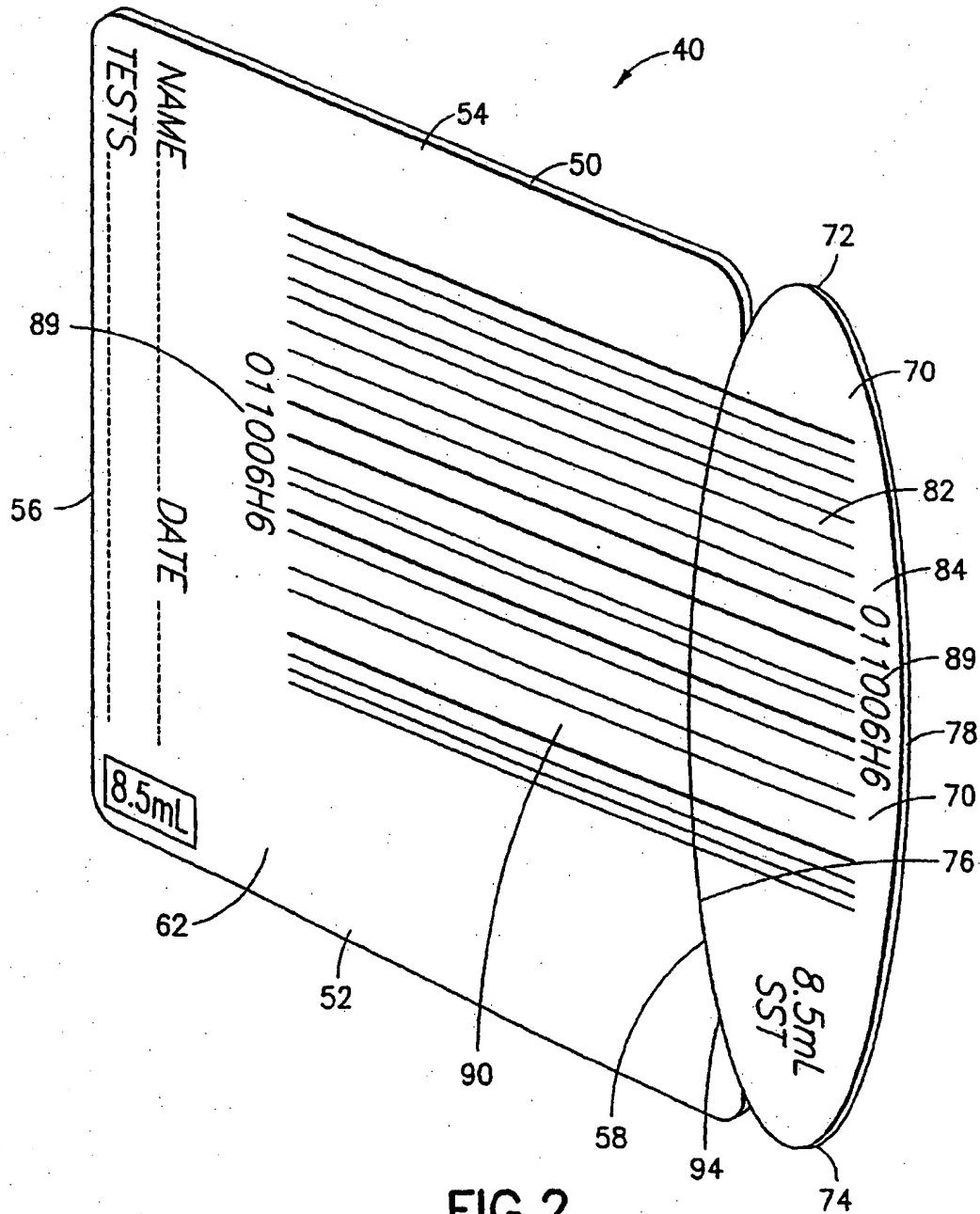


FIG.2

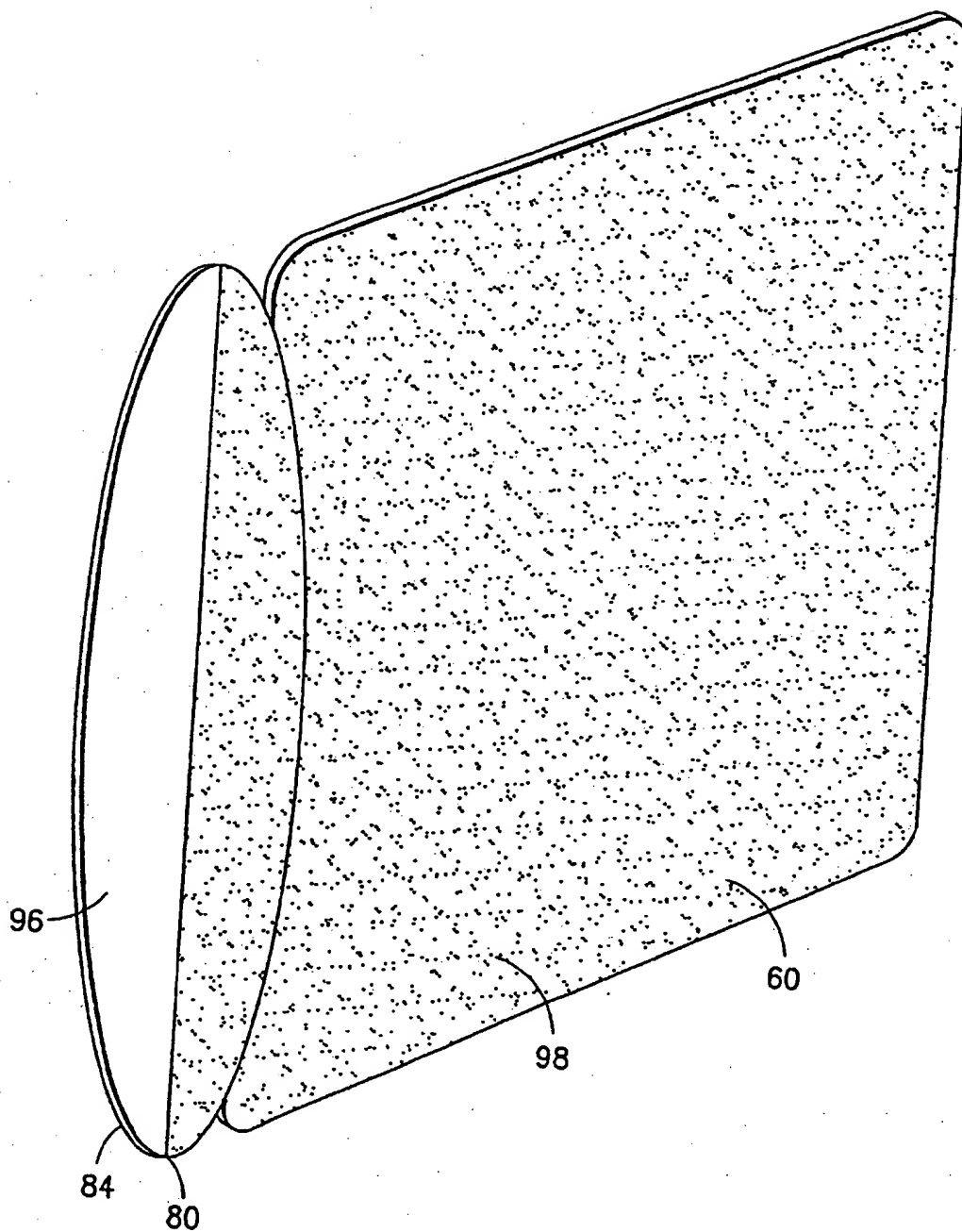


FIG.3

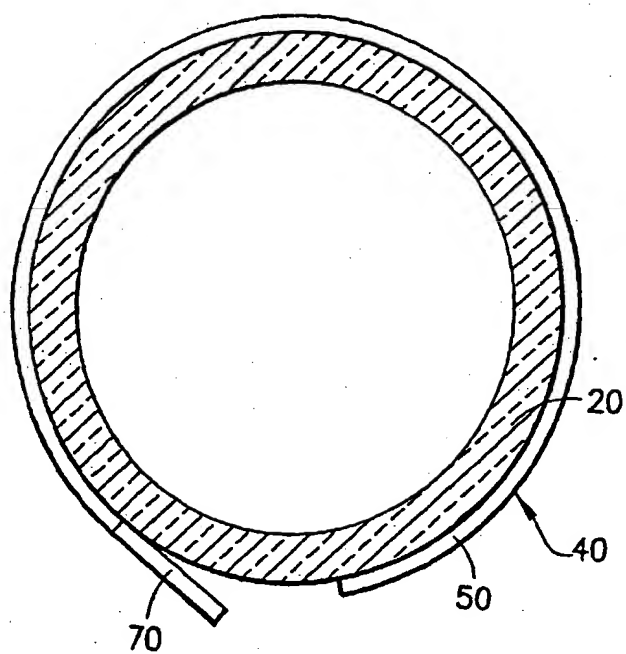


FIG.4

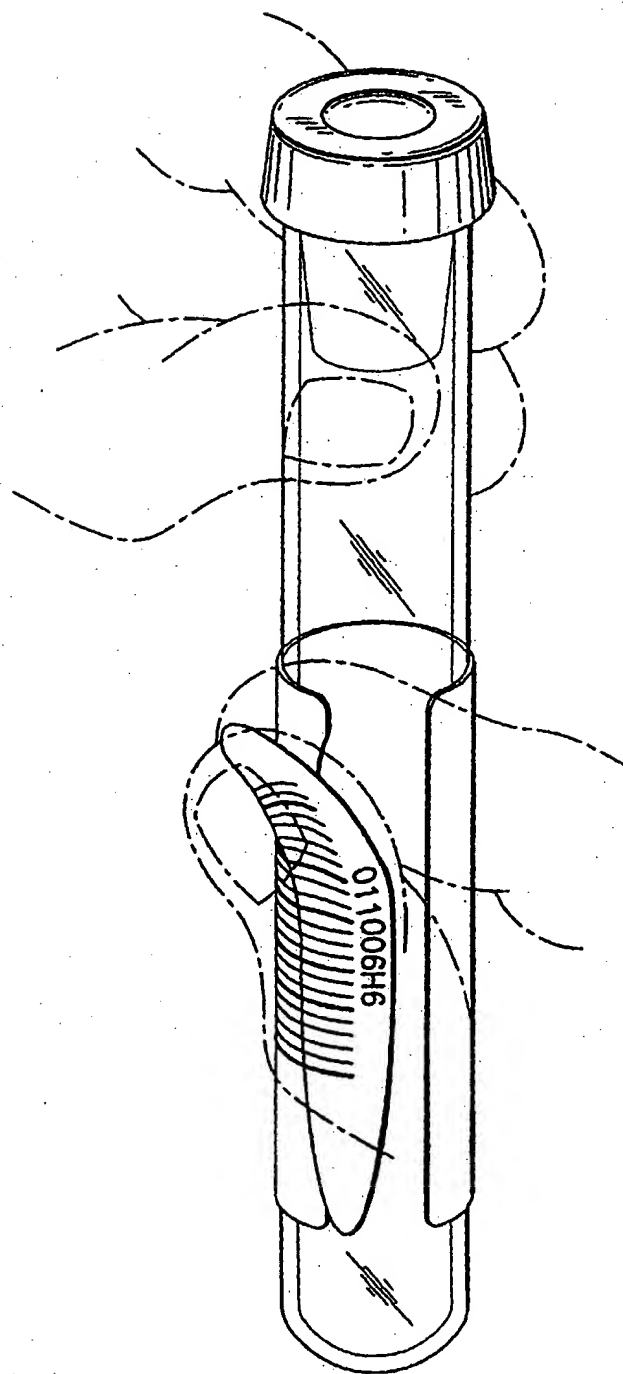


FIG.5

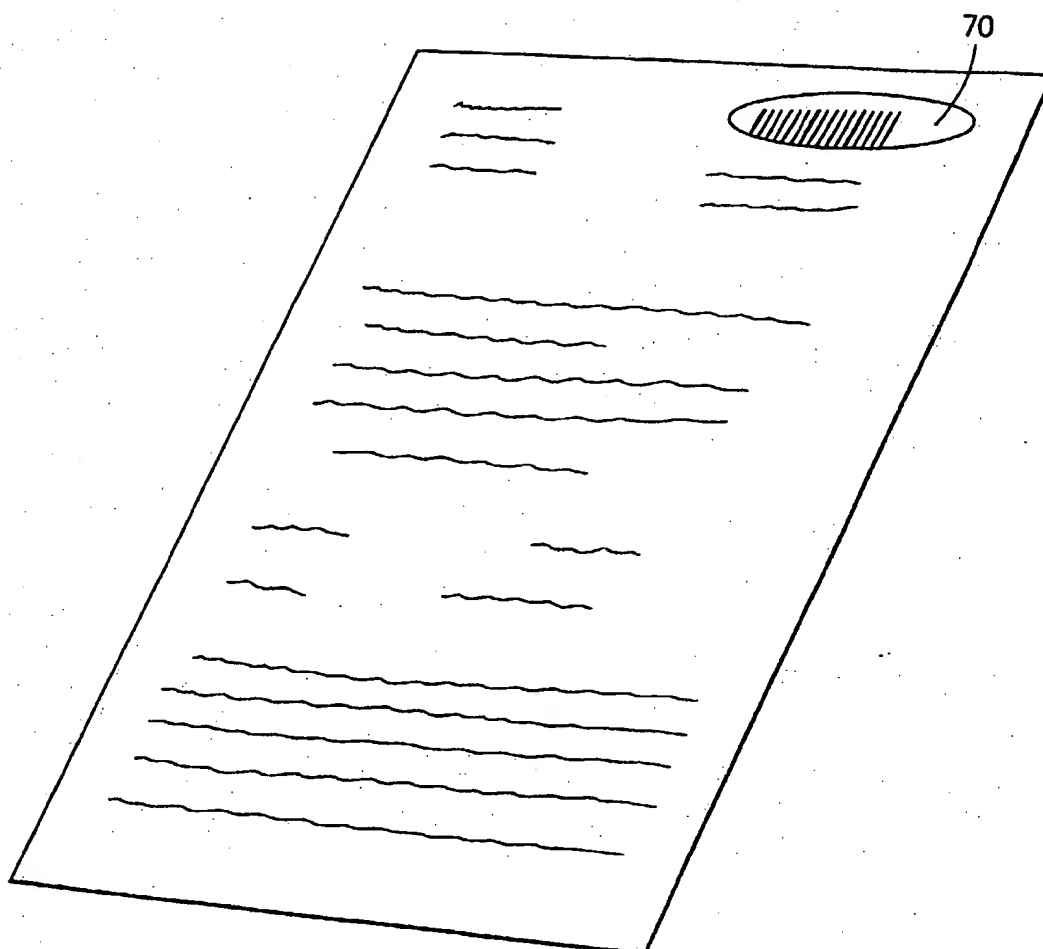


FIG. 6

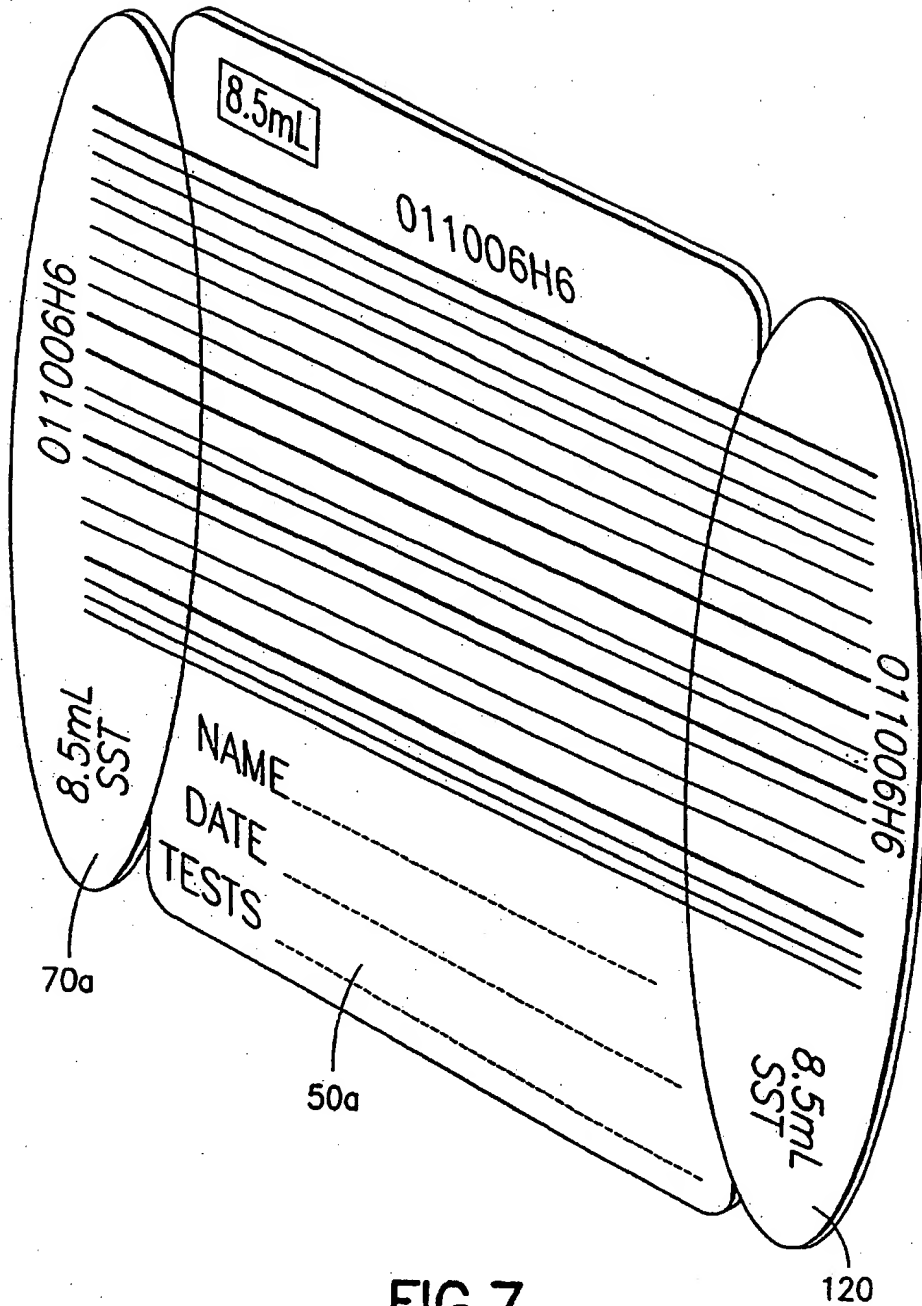


FIG. 7

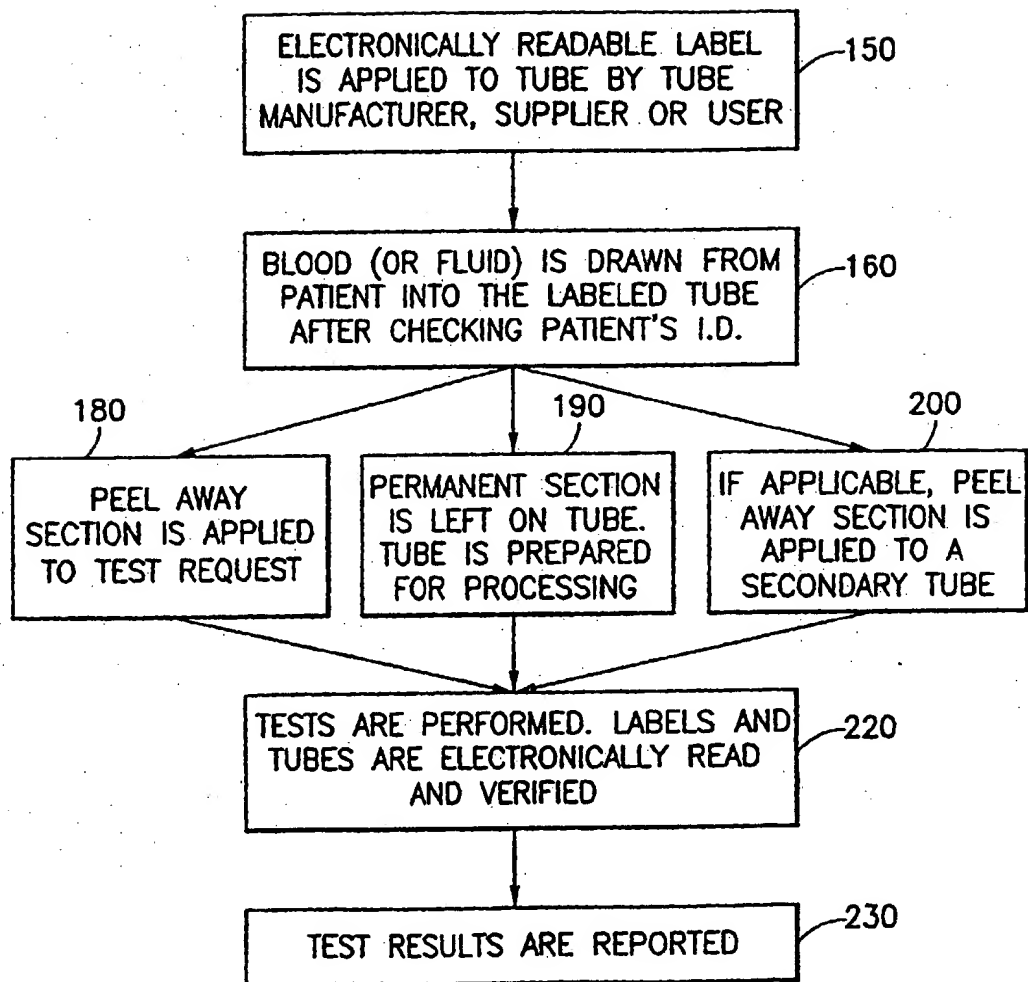


FIG.8